ONLINE PEER MENTORING AT SCALE: BENEFITS AND IMPACTS FROM A STUDENT BUDDY PERSPECTIVE

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Executive Summary

The benefits of peer mentoring for students studying in Higher Education are well established and have been demonstrated in online, blended and hybrid settings. Best practice in establishing financially sustainable schemes in online settings at a large scale is under researched. Motivations and barriers for peer mentors working effectively as volunteers are poorly established. Findings of a longitudinal study on undergraduate Earth and Environmental Science modules at The Open University, UK are presented. Peer mentors, (students who had already passed the module) were surveyed before and after completing a 9-month period supporting students asynchronously with non-academic support via a forum. Questionnaires established the challenges and benefits for the mentors, and were followed up by focus groups. Most mentors remained active and committed throughout, identifying few barriers; their expectations before starting were similar to their actual experience. More students regularly volunteer for mentoring than are needed, with many completing more than one round of duty. Some mentors even volunteer in different STEM schools depending on the modules they have studied. Most mentor cohorts comprise experienced (mentors staying on for a second year) and new to the module mentors, thus providing knowledge exchange and continuity of the student experience. This also helps maintain consistency and quality assurance. Costs of the mentoring programme are minimal for a Module team, mostly involved with recruitment and training (staff workload). It is therefore concluded that the mentoring scheme is financially sustainable and transferable to different modules and disciplines. While mentors valued their skills development, further work is required to help them appreciate their employability skills development and potential impact.

Introduction, Aims and Scope

There is little literature available to assess the benefits of online peer mentoring, or online peer assisted learning, apart from the review by Tibingana-Ahimbisibwe et al., (2022, and references therein) and Marshall et al., (2021), but the consensus is that such mentoring can benefit online distance learning students in many ways. The present study aimed to assess the benefits and challenges of volunteering in an online peer mentoring programme for the mentors, as some authors (Dawson et al., 2014; Rockinson-Szapkiw and Wendt, 2020) recognise that mentors also benefit in: developing new employability skills; reinforcing their own learning; and, particularly for black women in STEM, strengthening their career aspirations. Marshall et al. (2021) noted that undergraduate mentors at two universities recorded benefits in knowledge, self-awareness and career development. This is supported by Carvalho and Santos (2022), who showed that peer mentoring developed mentors' collaborative and metacognitive skills in an online constructivist learning environment.

In contrast, the challenges for online peer mentors identified by Pollard and Kumar (2021) include setting mentee expectations, online communication, and the need for training and support. Furthermore, Marshall et al. (2021) noted challenges relating to mentors learning the role, engaging with and relating to students (e.g. final year undergraduates mentoring entry level students in face-to-face settings). Many challenges appear to cross discipline, academic level, faculties and affect all types of online peer mentoring, whether 1:1 or 1: many. However, these challenges can be largely overcome by using good strategies to manage expectations and the provision of mentor training (Pollard and Kumar, 2021). It is likely that the challenges are more programme specific than the benefits, as perceived by mentors.

Leidenfrost et al. (2011) identified three distinct peer mentoring styles; motivating, informative, and negative or minimalist, which may have a greater impact on how mentors themselves perceive the benefits and challenges of online mentoring. These can also provide guidance for training to improve the sustainability of a peer mentoring programme, as mentors who perceive more benefits than challenges are more likely to continue in the role.

In their systematic literature review of e-mentoring programmes, Tinoco-Giraldo, Sanchez and García-Peñalvo (2020) identified several criteria for effective mentoring programmes, including: a good programme management structure; initial training for mentors; ongoing support for mentors; and periodic reviews of the programme to ensure quality is maintained and improved.

The current "Student Buddies" online peer-mentoring programme in Earth and Environmental Sciences at The Open University started with a year-2 pilot, 60-credit module in 2017 and has now expanded throughout the curriculum (Table 1).

Table 1: Summary of the mentors in the "Student Buddies Programme" 2022-23

	Number of peer mentors	Number of registered students
Year 1 (1 module) 60 credits	10	1795
Year 2 (2 modules) 60 credits	9	1062
Year 3 (2 modules) 60 credits	5	915
Year 3 (capstone project module) 30 credits	12	1046
Total	36	4818

The programme conforms to the recommendations outlined above in the literature and is designed to be generically applicable as its focus is on non-academic student support. Run entirely online via asynchronous forums on the Virtual Learning Environment, the average ratio of student mentors to students is 1:134. The programme has expanded into four other Schools in the STEM Faculty, and two other Faculties.

Volunteers are recruited from the most recent cohort of students who have passed the module. This means mentors are only 1-2 modules ahead of the mentees, so are often mentoring students at a similar stage in their degree. Some mentors (on the capstone project module) are returning graduates. Diversity and inclusion is embedded in the recruitment process, and is a strength of the programme. In particular, students with a range of pass grades are welcomed, as are students with varied backgrounds and characteristics (e.g. age, gender, neurodiversity, declared disability, varying personal commitments). Students who are selected as peer mentors are provided with synchronous online training; resources (a handbook, template forum posts, and IT guidance); and an Associate Lecturer to support their team. The mentoring forum is kept as a student space (with Associate Lecturer support) and advertised to all students studying the module.

A sustainable online peer-mentoring programme is dependent on a continuous inflow of new volunteer mentors, and while some mentors have carried on for 3 or 4 years across different modules on their student journey, to ensure sustainability we wanted to find out:

1. Are online, distance, peer mentoring schemes involving volunteer students sustainable?

2. What are the benefits and challenges of being a mentor?

3. Can mentoring contribute to students' employability skills?

Activities (Research Methods)

Following the University's approval processes for student research projects, participating mentors were recruited after giving their explicit, informed consent. Data collection used a mixed methods approach to provide a robust, detailed investigation of the research questions (Creswell and Creswell, 2018). Participants completed either one or two anonymous questionnaires, the findings of which were enriched and triangulated through two identical focus groups (attended by 4 and 2 students respectively).

Online questionnaires [JISC Online Surveys, www.onlinesurveys.ac.uk] gathered information prior to mentoring for the first time (Questionnaire 1), and post completion of their first year (Questionnaire 2) to capture changes in mentors' perceptions and expectations.

Questionnaire 1 was sent to 44 new volunteers on modules starting between October 2019 and February 2021. Mentors were asked about:

- their availability, and expected time commitment
- why they volunteered
- which skills and attributes they thought would be useful
- their concerns and thoughts prior to starting
- comments on their induction, and training.

Questionnaire 2 was sent to 46 mentors from the same modules as Questionnaire 1, asking about:

- their time commitment and activity as mentors throughout the module
- if they would volunteer again, and why
- how well their team worked / communicated, and associated challenges
- skills that had been useful, or developed through mentoring
- strengths of, and improvements for the programme.

Questionnaire responses were used to derive open questions for two, 1-hour focus groups (FGs). Each FG was held online in Microsoft Teams [Microsoft Corporation, www.microsoft.com] in July 2022. Mentors were asked about:

- advice they'd give to new prospective mentors
- how well the practical aspects of mentoring online worked
- what were the main rewards and challenges involved
- how did mentoring contribute to personal/professional development.

Open questions facilitated more in-depth exploration of the research questions and as for the questionnaires, responses were analysed anonymously from transcripts by inductive thematic analysis in NVivo [QSR International Pty. Ltd., www.qsrinternational.com]. Closed questions from the questionnaires were analysed quantitatively using graphical techniques.

Findings - Results

Questionnaire 1

Thirty-five responses (79%) were received and 94.3% of respondents had >2 years of university study prior to volunteering. Most students (62.9%) had 2-4 hours available per week for mentoring. The most important self-selected personal attributes for mentoring were knowledge of the module, ability to help others, and interpersonal skills (Figure 1).
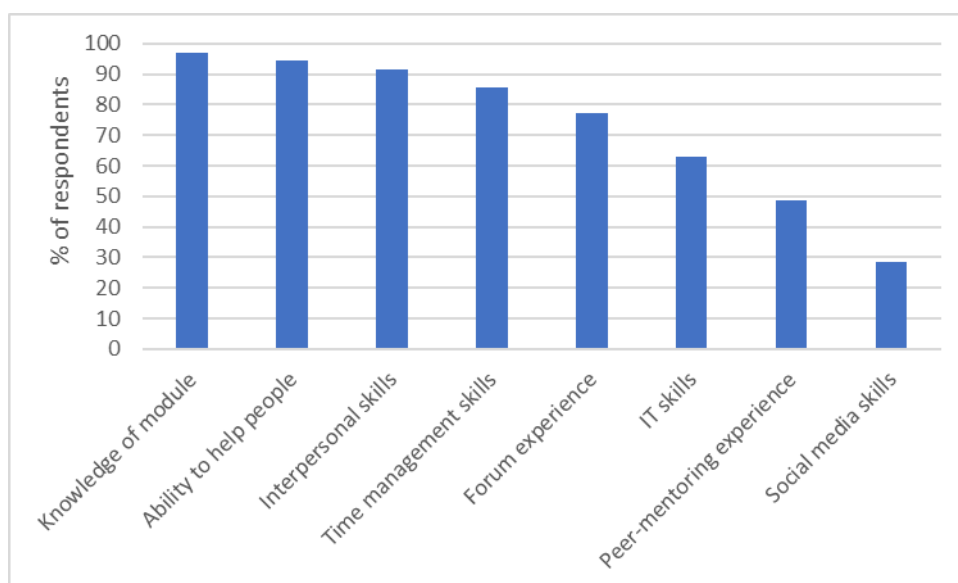

Figure 1. Number of respondents (%) agreeing to importance of personal attributes for buddying.

When students were asked about further attributes (not included in Figure 1), specific interpersonal skills, such as patience, positivity, teamwork, friendliness and tact were mentioned. The importance of any relevant prior experience (e.g. in education and training) was also identified, along with the need for reliability.

91.4% found the resources and training provided were helpful, and 94.3% engaged with pre-start online training.

Results from three open questions about motivation, concerns and thoughts before starting were analysed by thematic analysis (Table 2).

Table 2:   Most common themes from free text questions in Questionnaire 1.

Question	Themes
Motivations for volunteering	1. Provide help 2. Personal development 3. Flexible role
Concerns before starting	1. No concerns 2. Ability to help effectively 3. Time commitment
Thoughts about starting	1. Eager and excited 2. Confident 3. Supported

Questionnaire 2

Twenty-two responses were received (47%); 86.4% of respondents had remained active for the duration of the module and 77.3% would consider volunteering again. Most (81.8%) respondents found the time commitment to be the same or less than what they had expected, at about 1 – 2 hours per week. 63.6% of students did not find the role impacted negatively on their current studies, while a further 22.7% were not studying at the time of volunteering.

Respondents repeated their skills selection as in Questionnaire 1 (Figure 2) and identified skills they felt they had developed while mentoring (Figure 3).
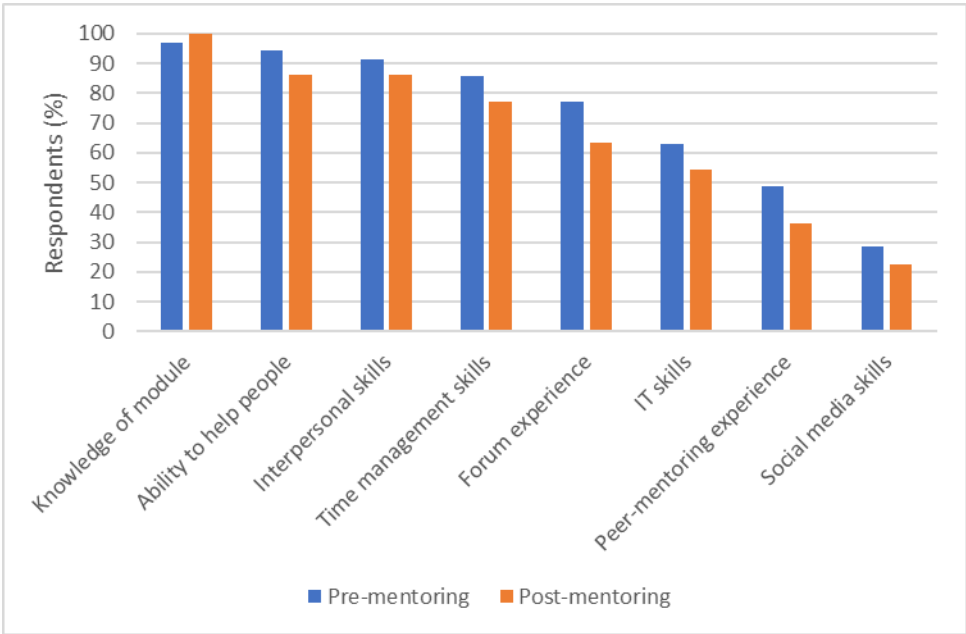

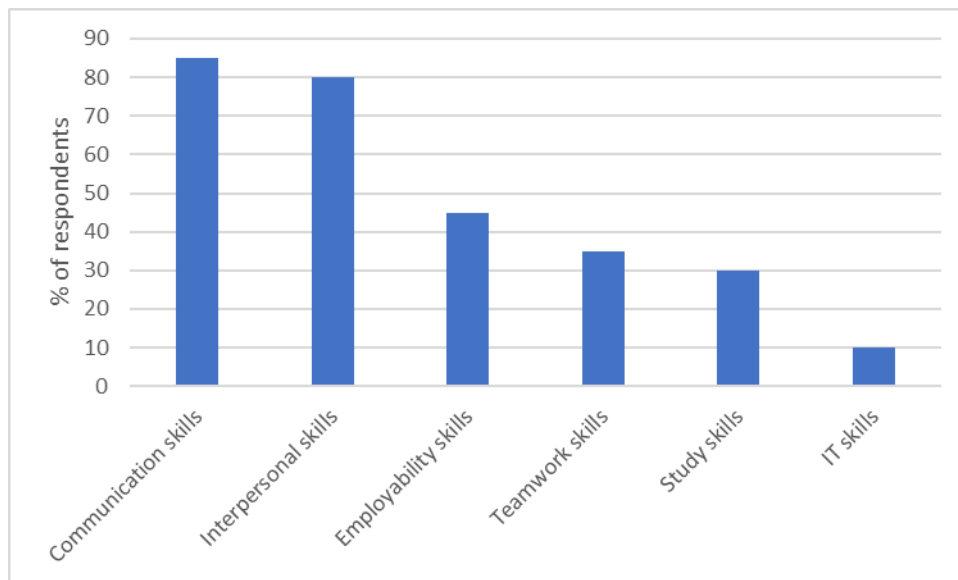Figure 2. Comparison of personal attributes' importance pre- and post-mentoring experience.

Figure 3. Skills identified as having developed during mentoring

Knowledge of the module they were working on was the only attribute that students said was more important than they initially thought, while prior experience in forums and peer-mentoring was much less important than they originally believed (Fig.2). Unsurprisingly, reflection indicated the most important skills to have improved were communication and interpersonal skills, singling out communication as the most important interpersonal skill of all. These, together with teamworking are all sound employability skills, though students see them separately.

Regarding team functionality, 90.9% felt it worked satisfactorily or better, and 72.7% felt part of the team. The majority (81.8%) reported communicating with fellow mentors, mostly via their own forum (88.9%) as important. Thematic analysis of open text questions revealed minor problems with team function including one buddy dominating the forums, and poor communication. However, a much greater number of positive themes emerged, the most common of which were effective teamwork, and a sense of inclusion during a respectful, supportive experience.

Open questions which invited identification of challenges and improvements elicited few responses. The main challenges were infrequent communication between mentors, personal time management, and students' expectations of what the mentoring role was. Suggested improvements were more frequent communication within the mentor team, and to provide opportunities for informal discussion between mentors across different modules.

Asked to identify the best thing about mentoring, a variety of responses were forthcoming, but the dominant theme was helping others. Feeling part of a team, giving back, being thanked, general satisfaction, and sharing knowledge and experience were also mentioned.

Focus Groups

The dominant themes, mapped against each focus group question, are presented in Table 3.

Table 3:   Main themes from Focus Groups.

Question	Dominant themes
Advice offered to someone thinking of volunteering.	• Draw on own knowledge and experience • Need to be confident, flexible and patient • It is not time consuming • Rewarding to help others
How the practical aspects worked.	• Training was helpful • Include more training on dealing with difficult situations • Access to forums was mostly good • Support available if needed • No need for similar responses to same question • Good to work together in a team • Care needed to avoid academic input

Main rewards and challenges	• Networking / professional development • Helping others is rewarding • Improved learning having studied module before • Reassures of own worth: more confident • Better communication skills • Time management was challenging

Findings - Discussion and Conclusions

The peer mentoring scheme appears to be sustainable, being now in its 7th year with student mentors repeatedly volunteering year on year. Contributing factors to this include mentors identifying the same pattern and order of beneficial attributes after their mentoring experience as beforehand – i.e. their expectations were not far from the reality of their experience (Figure 2). The nature of the programme and flexibility of the non-academic support facilitates mentors moving between cognate modules and also renders the model transferable to unrelated modules outside the faculty. Neither IT skills nor time management have been barriers to participation in the scheme in its current form. Furthermore, recruiting volunteers from those who have already studied and passed the module satisfies the pre-requisite attribute of "knowledge of the module" which almost all respondents identified as important (Figure 2). The small proportion of mentors who do not remain active for the duration of a module usually withdraw for personal reasons not linked to difficulties with the programme.

The study shows that mentors value the benefits to their skills development and recognise these to a certain degree. However, they do not seem to clearly recognise the development of employability skills. For example, interpersonal and communication skills – which are employability skills - were developed by at least 80% of respondents while "employability skills" were developed by only 45% (Figure 3). Further work is needed to determine whether this is students' perceptions of employability or maybe an artefact of the methodology in the range of questions asked.

Before the scheme reached its present size, an attempt to establish a mentoring community between modules failed with too few student contributions to generate discussion. However, with 35-36 mentors per year, the programme has now grown sufficiently to again trial building a mentoring community to facilitate the exchange of experience and views between cognate modules, and perhaps more widely across the Faculty and University.

The lack of challenges to mentoring, or recommendations for improvements to the programme could reflect a lack of confidence on the part of mentors to raise such things, or again could be a limitation of the study (e.g. the small sample and question format). It is unlikely that the programme is flawless though the mentors do feel that the training and support were adequate and beneficial. Student mentors have increased responsibility as they have to moderate their forums (albeit supported by an Associate Lecturer): this was not a barrier, but there is a need for additional training to help mentors deal with difficult situations that do (though rarely) occur, e.g. students breaking module assessment rules or posting inappropriate content which breaches expected conduct. Another area for improvement lies around educating the mentors with regard to the value of their role in developing recognisable employability skills, though one mentor did secure a job based on their mentoring role after recording their experience in their Curriculum Vitae.

Overall, we conclude that the programme is sustainable, with several benefits and few challenges for the majority of mentors. The principal future improvement for the scheme needs to be helping students recognise their employability skills development, and the potential value this adds to their experience.

Impact

The project has contributed to the establishment of the buddies scheme on nearly all undergraduate modules in EEES, with its findings supporting the case for the scheme's adoption by Module Teams. We are now confident of an additional pedagogical asset on our modules that is sustainable on a voluntary basis – the only associated direct costs are for an AL to act as the supervisor for the buddies, and this can be taken from spare FTE and staff time for recruitment and training of new buddies, born by the module team and school budget.

The direct impact of the buddies scheme is difficult to assess in that increases in student retention, satisfaction, grades and other easily obtainable numeric metrics can be influenced by any number of factors in a given module presentation (or series thereof). Two of the best indicators of impact are observed by looking at students' interactions with the buddies on the forums and are reflected in module forum usage. These are seen across many modules and at different stages of the student journey.

It is well known anecdotally that only a fraction of students registered on a module will participate and engage with the student forums. Engagement is typically greater in the first few weeks of the module and then tails off rapidly in many cases, except for around TMA cut-off dates. This produces a clear pattern in forum usage as shown from U101 (Figure 4)
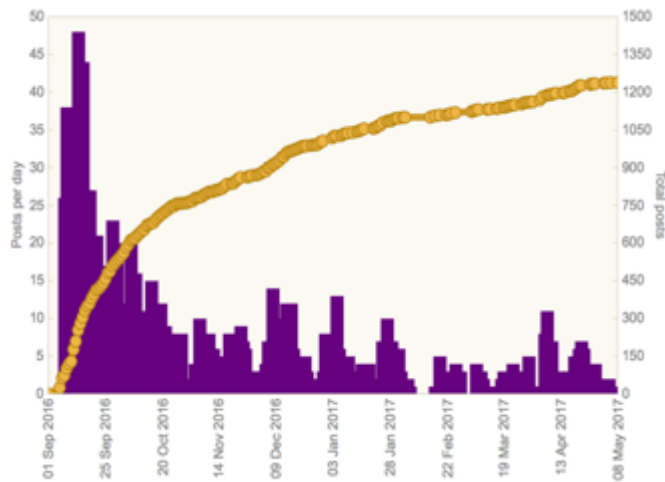
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Figure 4 Student café forum usage during the 2016J presentation of U101 without the student budddies. Note the clear tail off after the first monhth of the module and total number of posts over the presentation is ~1200.

The first year that buddies were introduced on U101 forum participation didn't tail off as much and for a similar sized student cohort the total posts at end of year was over 2000. The pattern of sustainaed participation is reflected in our EEES modules where student buddies are active – see Figure 5 for the typical pattern as seen in the 2023B presentation.
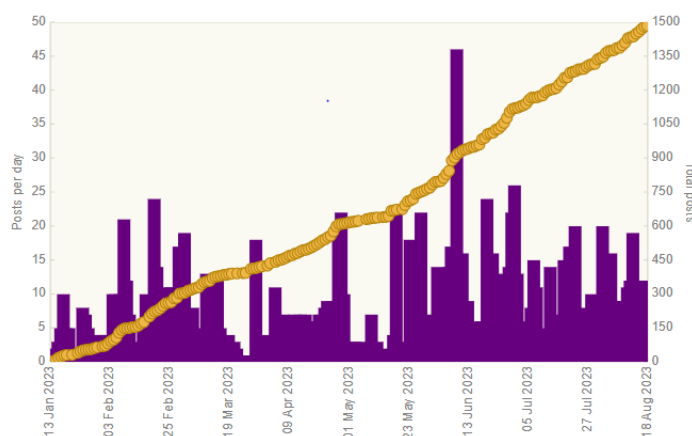

Figure 5 Particiaption in the S390 student buddeis forum over the first 31 weeks of the module in 2023B, showing a much higher level of sustainaed participation after the first month.

Looking at the data across several modules form Stage 1-3 for 2019 shows a similar sustained pattern of participation, but also that this is higher for Stage 1 and Stage 3 students than those at Stage 2. This is not perhaps suprising

because Stage 1 students are new to the University and the Stage 3 project module students are to a large extent completing their degrees with an Independent research project which many find challenging as it requires more sustained independent learning (Figure 6). The highest peaks for most modules are at the beginning of the presentation so this remains a crucial period for support. Notably, it took Stage 1 students 3 weeks to find the forum and start using it.
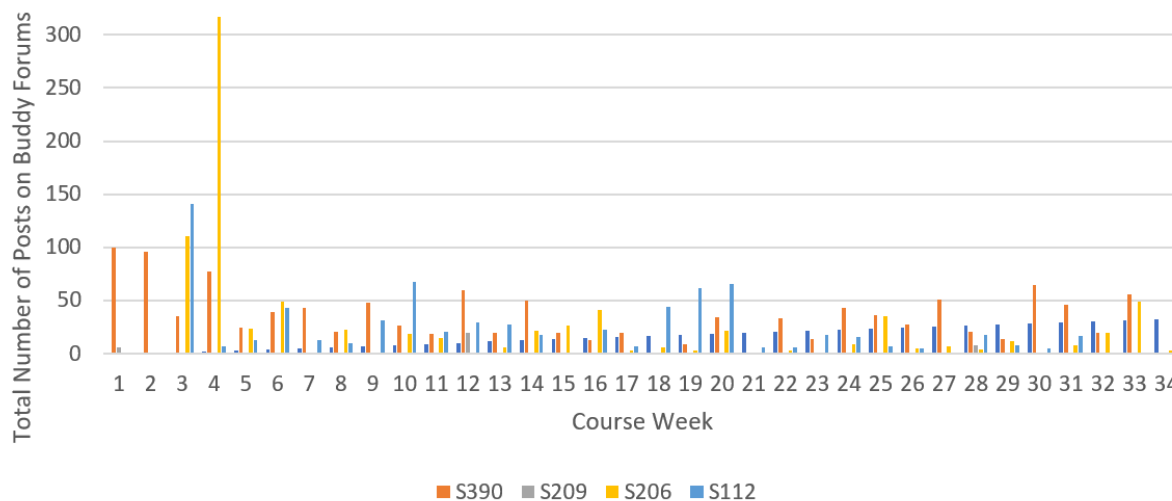

Figure 6 Student buddy forum posts across the whole presentation in 2018-2019

Perhaps some of the more tangible evidence of the impact of the student buddies scheme on students is reflected in their feedback as represented by the following quotes:

- 'Thanks [student buddy] for your advice, I have spoken to my tutor…. and I am going to stick with it. I appreciate your links, encouragement and a sympathetic ear!.' Stage 1 module

- 'Brilliant tip guys, thank you!. This is brilliant having access to speak to people that have done the course, thanks for doing this for us' Stage 2 module

- 'I say a big THANK YOU to all student buddies for your great support, you are all amazing!! SXL390 is a hard module, your support and advice went along way to tackle it. ' Stage 3 module

The buddies themselves are also impacted by the scheme, despite the pandemic, but workload management is very important:

'The overall experience has been both a joy and very satisfying. If any of this years students take up the offer of buddying next year, you might then understand what I'm about to write. The first feeling is of relief that it's not me having to go through it all again! Then it's the overwhelming feeling of wanting everyone to do well, and trying to answer the questions as soon as possible - I remember that feeling of desperately wanting to get on but feeling a bit lost, and not knowing how to move forward. This is a demanding and challenging module, so I hope we have been able to make the whole experience a little less stressful.'

"…it hasn't been too onerous really, other than for the last few months of this year where Covid and 3 EMAs made things rather hectic and I had to step away from it a bit. I think by that point the buddy queries were fairly thin on the ground anyway, as the students were well into their stride, with most questions of an academic nature so more for the tutors than for us." S390 2020

Beyond the School, the buddies project has been adopted by several modules in the Schools of Life Health and Chemical Sciences, Physical Sciences, Maths and Statistics, Computing and Communication, and in the Faculty of Arts and Social Science, and Faculty of Business and Law. There may be other examples that we are not aware of.

Deliverables

- Online Peer -Mentoring Scheme at scale in the STEM Faculty; Preliminary Evaluation and a Resource Pack: https://www.open.ac.uk/scholarship-and-innovation/esteem/projects/themes/supporting-students/online-peer-mentoring-scale-benefits-and-impacts-student-buddy-0

- **eSTEeM seminar** on 19 July 2023 (Presentation)

- Presentations to Maths and Stats Board of Studies (July 2022) and Computing and Communications (September 2022)

- **EDEN Annual Conference, Dublin, June 2023** (Presentation and Paper in proceedings)**:** TOWARDS BEST PRACTICE IN DESIGNING SUSTAINABLE ONLINE PEER MENTORING AT SCALE – WHAT'S IN IT FOR THE MENTORS?

- **2020 eSTEeM Student Conference** (Presentation)

- **2019 eSTEeM Conference** (Poster)

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Figure 6 Student buddy forum posts across the whole presentation in 2018-2019

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University Approval Processes

- 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 2019/080

- Ethical review – An ethical review was obtained according to the Open University's code of practice and procedures before embarking on this project. HREC review approval date 25/06/2019

- 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. - not applicable as we didn't collect personal data