



Empowering Peer Leaders: Designing Dynamic PLTL Training in the United Kingdom

Tyler Christian, Hannah Wilton, Redwan Shahid, Sally Faulkner*,
& Lesley Howell

Queen Mary University of London
London, United Kingdom
s.c.faulkner@qmul.ac.uk



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Tyler Christian, Hannah Wilton, Redwan Shahid, Sally Faulkner, & Lesley Howell

Queen Mary University of London
London, United Kingdom
s.c.faulkner@qmul.ac.uk

Abstract

In the academic year 2021-2022, Queen Mary University of London (UK) launched its successful pilot of Peer-Led Team Learning (PLTL) within undergraduate chemistry and economics courses. This year (2022-2023), the program expanded, with PLTL also introducing courses within biological sciences and business studies. Over 900 students are now enrolled in our PLTL program facilitated by approximately 80 Peer Leaders. Building on this success and inspired by colleagues from the University of Rochester on Peer Leader training materials, we sought to develop our own bespoke training materials for QMUL Peer Leaders. Working with our Peer Leaders, content was co-created to develop a feedback-orientated program for future cohorts. The current cohort of Peer Leaders was surveyed to identify gaps in the previous training program and suggest ideas to be prioritized. The enhanced training program emerged as an immersive online 'course page' comprising of written documents, videos, and interactive activities. This material will be consolidated and reinforced through an in-person training day to be held in late September during “Welcome Week” culminating in a final online assessment. This paper explores the intricacies of the decision-making process involved in crafting the training materials and serves as a template for other UK Universities adopting PLTL.

Keywords: PLTL, Co-creation, Training Materials, Student-Led, Feedback-Oriented

Introduction

Peer-Led Team Learning (PLTL) is a dynamic and inclusive educational approach originating from the USA (Gosser et al., 2010) which instils a deep understanding and retention of complex topics, particularly in STEM subjects (Chase et al., 2020). It has been shown to improve student outcomes (Wamser, 2006), reduce awarding gaps (Hickman, 2016) and improve confidence and sense of belonging (Hockings et. al., 2008). Students meet on a regular basis in small groups to work through a series of challenging and thought-provoking questions. These workshops are facilitated by “Peer Leaders” – a so called near-peer who is usually a student who has previously completed the course successfully. A key part of any PLTL program is the Peer Leaders and it is vital, and indeed a critical component, that they receive adequate training on facilitation (Becvar et al., 2008).

Peer Leaders need to actively engage the group when facilitating workshops and most require training on how best to achieve this. Franco & Nielsen (2018) found successful (non-PLTL) workshop facilitators should be able to ensure active participation, focus on future learning goals, and encourage collaborative discussions. These three criteria readily apply to Peer Leaders’ workshops and should thus be taught during the training programs. This concept is not novel to PLTL (e.g. Gosser et al., 2001), and facilitation is a recommended component of Peer Leader training programs. Despite this, previous surveys found that not all Peer Leaders received training on facilitation, instead focusing on revising workshop content (Chase et al., 2020), potentially reducing the Peer Leaders’ ability to fully engage and support their groups. This focus on strengthening Peer Leaders’ comprehension of the workshop content demonstrates the missed opportunities to improve PLTL. The assessment on expanding Peer Leader training may reveal improvements in workshop dynamics and outcomes.

Many institutions across the United States incorporate PLTL into their courses, utilizing diverse training program structures. Some colleges and universities organize an intensive pre-semester course, whilst others opt for shorter recurrent training sessions throughout the semester (e.g., Cracolice & Broffman, 2021). Recently, New York City College of Technology, City University of New York, took inspiration from these styles, developing a hands-on approach to training Peer Leaders in Mathematics (Kennedy, 2022). Firstly, they would teach Peer Leaders about learning theory before asking them to participate in “Rehearsals,” and complete a research assignment about PLTL workshops. This “rehearsal” system was particularly interesting as it allowed the Peer Leaders to practice and develop their skills before facilitating their first workshop, presumably helping them overcome their trepidation about guiding peers.

Despite the success of these programs, they are targeted towards training American students, and some methodologies may require adaptation for transporting PLTL to new

cultural contexts. For instance, American students are likely to enjoy elaborate social activities (e.g. themed costume days), whilst students from other more reserved cultures (i.e., British) may find this intimidating (Yan & Sendall, 2016). Therefore, Peer Leader training programs must address the key content while accounting for cultural preferences. Likewise, the training programs require personalization based on the structure of their PLTL program. This was demonstrated during the COVID-19 pandemic when some institutions transitioned to online workshops, making an extended pre-semester training program impractical. Instead, weekly 90-minute pre-session briefings were organized to cover workshop facilitation and content (Wilson & Varma-Nelson, 2021).

PLTL at QMUL

In September 2021, Queen Mary University of London (QMUL) launched its PLTL program as a pilot, making us one of the first higher education institutions in the UK to adopt this learning tool. The introduction of PLTL workshops into three independent modules aimed to identify potential challenges and establish a set of recommendations for implementing a scaled-up PLTL program at QMUL (Shahid et al., 2022). The early results from the pilot showed a statistically significant improvement in student outcomes where PLTL was an assessed and compulsory element of the course. Furthermore, this preliminary data indicated a reduction in the awarding gap between Black, Asian and Minority Ethnic (BAME) and White students. This study is ongoing and we will report longitudinal data in due course.

Building on this success, PLTL was expanded into the Schools of Biological and Behavioral Sciences (SBBS) and Business Management (SBM). This brought the total number of courses using PLTL up to five with approximately 900 students enrolled on our program facilitated by approximately 80 Peer Leaders (see Table 1). Interestingly, this was the first year where we had students enrolled in PLTL in their own course whilst acting as a Peer Leader for a course in the year below.

In our first two years of running PLTL, all Peer Leaders attended a general introductory two-hour compulsory training session covering the history of PLTL, its six critical components and why QMUL was interested in implementing this innovative approach. Colleagues from the Queen Mary Academy (our equivalent of a center for teaching and learning) co-delivered the session focusing on the art of facilitation and different facilitation techniques. However, our approach was fairly didactic in nature and feedback from our Peer Leaders commented that the training felt too brief and furthermore that they did not always feel fully prepared before their first session despite having the pre-workshop sessions before each PLTL session. We believe this was primarily because these first two cohorts of Peer

Table 1. Courses Incorporating PLTL at QMUL during 2022-2023

School	Course Name	Year Started	Cohort Taught	Compulsory	Percentage of Course Grade
SPCS	Fundamentals of Organic Chemistry	2021	Level 4 Sophomore	Yes	20%
SPCS	Pharmaceutical Chemistry	2021	Level 5 Junior	Yes	20%
SBBS	Practical Molecular and Cellular Biology	2022	Level 4 Sophomore	Yes	5%
SBBS	Research Methods and Communication	2022	Level 5 Junior	Yes	5%
SBM	Working With Business Data	2022	Level 5 Junior	No	0%

SPCS: School of Physical and Chemical Sciences

SBBS: School of Biological and Behavioural Sciences

SBM: School of Business and Management

Leaders had no prior experience of PLTL; for many, this was their first time leading an educational activity and thus they required further guidance and support.

Reflecting on this and the planned future expansion of our PLTL program in 2023-2024, the PLTL project team began to re-examine the training resources. Inspired by the work of colleagues at the University of Rochester (Rochester, New York) which was presented at the Tenth Annual Conference of The PLTL International Society, we sought to create a variety of resources in collaboration with our Peer Leaders. To achieve this goal, we successfully applied to The Westfield Fund (an internal QMUL grant call) to fund this work. Specifically, this financial support allowed us to hire two Peer Leaders as interns to develop a new training program. Co-creation with students is embedded in the Queen Mary Values promoting a strong sense of collegial community. Furthermore, this student-led approach incorporated feedback from our students and allowed the training material to be designed in a digestible, student-friendly manner.

Expanding our training

This paper presents a summary of the feedback received from former Peer Leaders, detailing its impact on the design of the updated training program. Furthermore, it explores the adaptability of our training resources for other institutions seeking to tailor them to their specific PLTL programs.

When starting to think about the different forms of training resources we could develop, several important considerations were taken into account to ensure a successful and effective program. The design of PLTL training programs varies between institutions. For example, Kennedy (2022) developed a reflection-orientated program in which Peer Leaders were taught about learning theory and the overall concept of PLTL and conducted rehearsal workshops. Furthermore, this program involved multiple reflective activities, one of which involved the trainee's writing "letters" to future cohorts of Peer Leaders, allowing them to reflect on how they could improve their facilitation style. Despite these extensive training programs, some Peer Leaders still misinterpret the purpose of PLTL, believing that they are required to teach, mimicking a 'standard' lecture format, rather than facilitating the learning of their near-peers (Clark & Raker, 2020). Therefore, the optimal training program should discuss the purpose of PLTL, how to facilitate the workshops and provide exemplary activities which could be used within the Peer Leader's workshops.

Our primary objective was to ensure that, upon completing our introductory training, Peer Leaders would possess a comprehensive overall understanding of their roles, responsibilities and the advantages of adopting the PLTL approach. Furthermore, we wanted to provide some pedagogical training – specifically on effective facilitation techniques to ensure Peer Leaders know how to engage students, encourage active participation and listening, and foster an inclusive and collaborative learning environment. Our collaborating

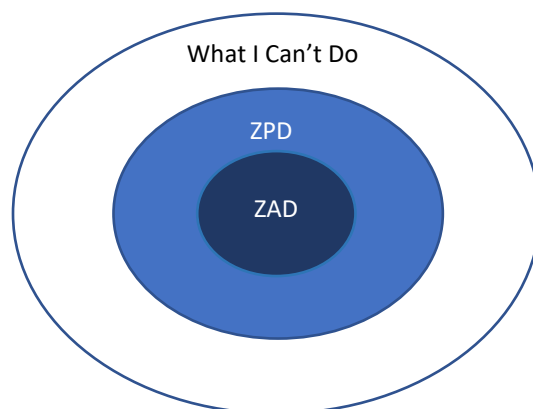


Figure 1. Vygotsky's Zone of Proximal Development. ZAD = Zone of achieved development (current understanding and knowledge). ZPD = Zone of proximal development (what can be achieved with assistance from a more knowledgeable person)

Peer Leaders expressed a strong interest in incorporating Vygotsky's zone of proximal development (ZPD) as an essential concept in our training materials (Vygotsky, 1978; Cracolice, 2012). The ZPD (see Figure 1) refers to the difference between what a learner can do independently and what they can achieve with the assistance of a more “knowledgeable” person, such as a Peer Leader. Lastly, ensuring that the material was engaging and easy to comprehend was crucial. If the Peer Leaders found the content boring or difficult to understand, it would undoubtedly hinder the effectiveness of the training material.

Survey

Prior to developing any training materials, we sought the feedback, insights and opinions of our current cohort (2022-2023) of Peer Leaders. This was achieved through an online survey which was emailed to the Peer Leaders. This survey was designed to assess the effectiveness of the previous year's training and gather input on their preferences for future training programs. To ensure confidentiality, all responses were treated anonymously, and the results were analyzed using the coding software R (Bates et al., 2015; Pedersen, 2022; R Core Team, 2022; Wickham et al., 2019). The survey consisted of a mix of multiple-choice questions (including those using a Likert scale), ranking questions, and open-ended responses. Participants were encouraged not to leave any question blank, or write “N/A”, thus increasing the quality of responses.

Results

Out of the 28 Peer Leaders who participated in the survey, the majority (75.0%) were from SBBS, 17.9% were from SPCS, and 7.1% were from SBM. The survey responses indicated a balanced distribution between second- and third-year students, with both groups comprising 50% of the participants. Among the second-year Peer Leaders, approximately half expressed a desire to continue their role as a Peer Leader in the upcoming academic year. This continuity allows new trainees to benefit from the experience and insights of previous Peer Leaders, creating a sense of support and camaraderie among them. Although there was a bias towards SBBS in the survey respondents, the statistical analysis revealed that there were no significant differences in responses provided by each school. This finding indicates that PLTL had a similar impact across all departments, despite the varying representation of Peer Leaders from different disciplines. This was tested using an ANOVA of the participant's school compared the responses to the “how beneficial was PLTL?” question (Appendix 1) (ANOVA_{2,25}, $f = 1.308$, $p = 0.288$).

Comparing the results from all Likert scale questions revealed a consistent trend, with SBBS consistently averaging the lowest scores, and SBM obtaining the highest scores. This could be due to PLTL in SBM being voluntary rather than compulsory or more likely due to

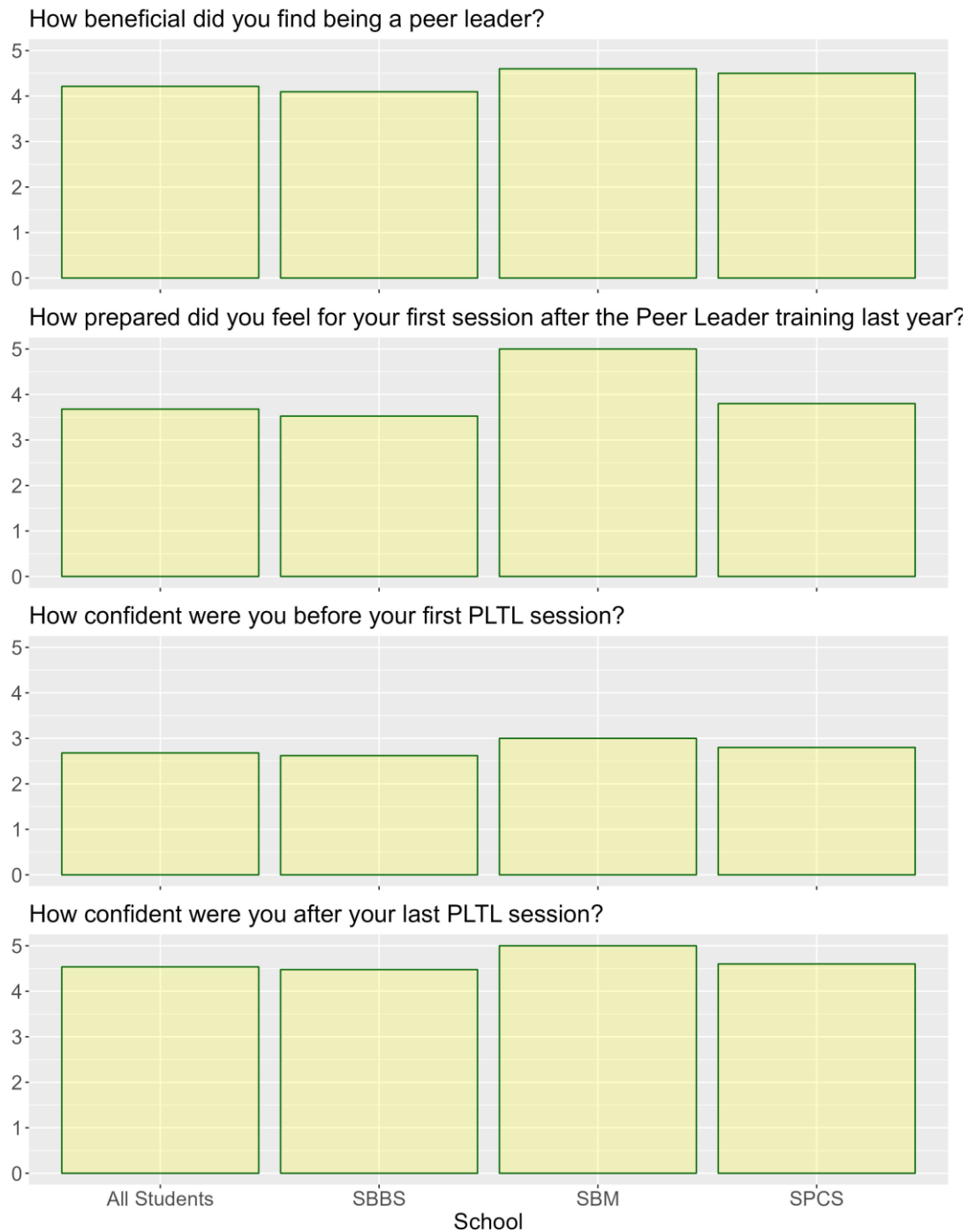


Figure 2. Histograms illustrating the mean responses for each Likert scale question, where ratings ranged from 1 (strongly disagree) to 5 (strongly agree). Each bar represents a different academic school with the first displaying the mean across all survey participants ($n = 28$). SBBS: School of Biological and Behavioral Sciences ($n = 21$), SBM: School of Business and Management ($n = 2$) and SPCS: School of Physical and Chemical Sciences ($n = 5$).

the varying sample sizes (Figure 2). These results demonstrated that all Peer Leaders benefited from the program, and the training lecture was mainly useful but required some improvements. Also, Peer Leader confidence massively increased as the program progressed, demonstrating how PLTL benefits the Peer Leaders and the students alike (e.g. Chase et al., 2020). Based on the results obtained, we deemed it vital for the training material to tackle the lack of confidence among Peer Leaders before the first session.

The survey also contained two open-ended questions. The first (Q10) prompted participants to provide a short statement offering advice to future Peer Leaders. This open-ended response format allowed the current Peer Leaders to share their insights, experiences, and tips for those taking on the role in the future. These statements were overwhelmingly positive, with the most common responses being "relax," "be prepared," "understand the material in advance," "be yourself," and "just have fun." The second open-ended question (Q12) invited participants to suggest ideas, topics, and improvements to the Peer Leader training program. Many of the responses to this question were either not feasible or repeated ideas mentioned in the previous survey question. However, a few participants suggested having access to the current course pages and content on the online learning environment (OLE), which is easily implemented.

The survey's other major question (Q11) presented participants with a list of 10 potential training ideas and requested them to rank these ideas from the most to least beneficial. Figure 3 illustrates the results, revealing that the most popular idea was to conduct a training day, while the least popular idea was providing access to Padlet pages (an online forum used by the university).

Discussion/Training day development

These findings provided valuable guidance in tailoring the training program to meet the preferences and needs of our Peer Leaders. The remainder of this paper discusses how these results influenced the selection of ideas that were ultimately incorporated into the training material for future cohorts of Peer Leaders. We translated survey feedback into training upgrades aiming to amplify Peer Leader preparational experiences and capabilities. Preliminary data reveals positive reactions from participants. Our commitment to continuous advancement and community building underpinned additions like informal leader profiles, despite weaker survey endorsements. However, consistently low-ranking ideas faced elimination. The centerpiece enhancement was a 22-page Peer Leader Handbook conveying foundational content and best practices often with an integrated subtle humor. An original training video also demonstrated productive responses to common classroom challenges using a humorous mock PLTL session. Finally, an intensive capstone training day enabled knowledge consolidation through interactive skill-building.

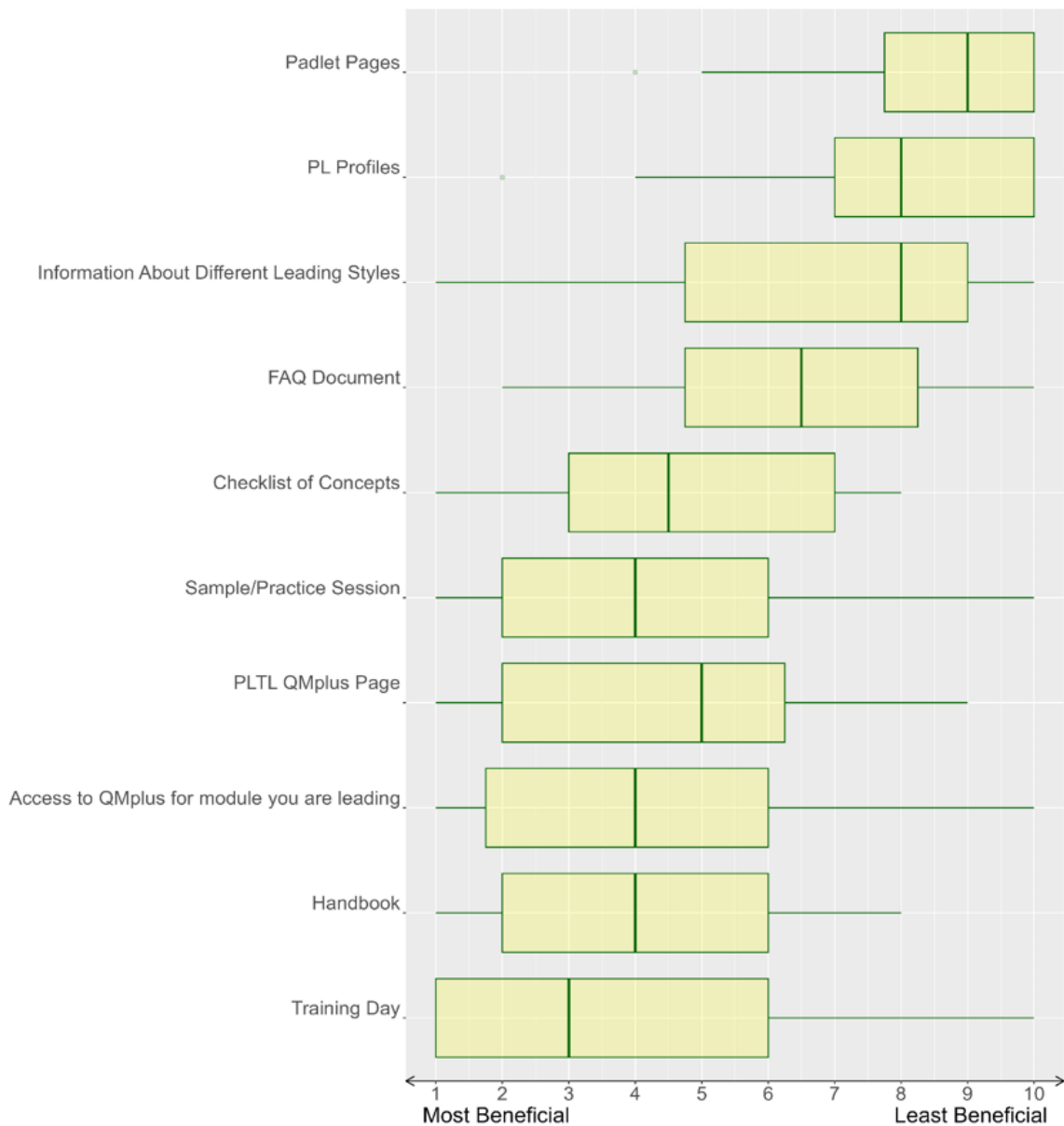


Figure 3. Boxplots displaying survey results from Q11 asking participants to rank potential training ideas.

Online pages

In previous years, Peer Leaders had access to a Microsoft Teams page which facilitated communication between Peer Leaders and course organizers. However not all students regularly check or use Teams as it is not the primary learning platform at our institution, leading to missed notifications. In response to these challenges, we opted to adopt a combination of Microsoft Teams, WhatsApp, and QMPlus (our OLE) to enhance

communication and document sharing among Peer Leaders and faculty. This multi-platform approach ensures important information reaches all relevant parties, providing a more comprehensive and efficient support system for the program.

QMPlus is QMUL's institutional OLE and is based on Moodle. It consists of online course areas for each individual course on a degree program and includes all teaching resources such as videos, presentations, reading lists and practice questions, for example. There are also

PLTL - Peer Leader Training Material

General Training Material Training Day FAQ Compulsory Training Quiz Peer Leader Profiles Module Pages

**Q
M
U
P L T L**

Announcements for Peer Leaders

Peer-Leader Forum
To chat about general PLTL stuff. Please direct your module-specific questions to the appropriate tab.

Cover Forum
Post in here if you are unable to make your session and require a cover peer-leader.
Cover Rules:

Figure 4. The new PLTL course page on QMPlus

tools for communicating such as chat rooms and forums. Almost all coursework and assessments are submitted via QMPlus. Consequently, the majority of students check QMPlus daily. To fully utilize this platform, we designed and created a new course page specifically for our Peer Leaders. This page contains all training materials and can be updated throughout

the semester as the PLTL program advances. For organizational purposes, the page was separated into tabs (Figure 4).

The "general" tab serves as an overview of the course and training materials, along with several forums. The first of these, "Announcements for Peer Leaders," is locked to the students, allowing the course organizers to send updates and important updates to the Peer Leaders. For interactive discussions and queries related to workshops, Peer Leaders are encouraged to use the "Peer Leader Forum," fostering collaboration among themselves and with course organizers. In the rare instance that a Peer Leader cannot attend their scheduled session (e.g. due to illness), they can use the "Cover Forum" to inform the course organizer and request other Peer Leaders to cover their slot. In making this publicly available, Peer Leaders are (hopefully) deterred from missing workshops, meaning they only request cover as a last resort. This also allows course organizers to track the Peer Leaders' reliability, identifying any patterns of missed sessions and addressing such issues promptly.

The "training material" tab offers the Peer Leaders a comprehensive overview of all aspects of PLTL, starting with a brief history of PLTL (Dreyfuss, 2013), allowing the new Peer Leaders to understand the value of the program. It also includes the Peer Leader handbook which contains a wealth of useful information. Additionally, this tab houses other media including a video of a PLTL workshop, providing Peer Leaders with an opportunity for reflection and observation. The quotes and advice from the previous Peer Leaders, described above, are also included in this section. The "training day" tab provides a concise summary of the upcoming compulsory in-person training event for Peer Leaders. This section covers crucial details such as the date, time, location, and specific information pertaining to the training day. This event is an essential component of the training process, ensuring that Peer Leaders receive hands-on guidance and instruction to prepare them effectively for their roles.

We were curious to see that the FAQ document had a mid-range score on the initial survey (Figure 3) since we had predicted it to score higher. Indeed, both Peer Leaders working on this project emphasized the FAQ document as a valuable and beneficial resource during their interviews for the summer internship; based on this we decided to pursue this element. The FAQ tab was separated into different sections: about PLTL, rooms, worksheets, before your sessions, during your sessions, and miscellaneous. This layout made it easier to navigate and had the added benefit of making the material more digestible, allowing Peer Leaders to easily find their desired answer without reading the entire FAQ document.

After going through the training material and participating in the training day, Peer Leaders are required to complete a 25-question multiple-choice quiz (MCQ). This MCQ covers all aspects of the training material and included various question styles testing the Peer Leader's recall of key concepts and responses to potential scenarios. Upon achieving a minimum pass grade of 70%, Peer Leaders were presented with an online certificate,

confirming their position as a Peer Leader. This certificate served as both a validation of their training completion and an employability incentive (for example it could be added to LinkedIn profiles), showcasing their dedication and competence as Peer Leaders.

Despite "Peer Leader Profiles" being ranked as the second lowest-scoring idea by the current Peer Leader Cohort in the survey, we made the decision to implement it nonetheless. Again, inspired by work presented by colleagues at the Center for Workshop Education at the University of Rochester on this theme at the 2023 Annual PLTLIS conference (see PLTLIS.org) we recognized the potential benefits of this feature. We believed that providing Peer Leader Profiles which showcased each individual could enhance the sense of community and collaboration between the students and the Peer Leaders. These profiles will be compulsory for Peer Leaders to complete and contain brief and colloquial questions such as their favorite module, favorite food and why they became a Peer Leader. An example profile was provided to aid with this process.

The final tab – “module pages” provides a platform for each course (or module as they are known in the UK) to upload course specific content. For example, each PLTL workshop is designed around a series of challenging problems co-created between the course organizer and the Peer Leaders. During the briefing sessions, advice is presented on how to approach the questions, how to facilitate discussion and encourage productive debates among the participating students. This tailored approach ensures that each PLTL workshop aligns with the specific needs and objectives of the corresponding course, enhancing its relevance and effectiveness. Finally, after the workshops, Peer Leaders would be invited to complete a quick survey on this tab, giving feedback on how they felt their session went and any topics/content the group struggled with.

Initially, we had intended to incorporate Padlet pages extensively throughout the QMplus page. Padlet allows students to post anonymous answers to questions and comment on each other's responses and is commonly used by the university for online forums. However, as the survey consistently ranked Padlet pages as the lowest-scoring idea, we removed them from our plans. Instead, we opted for a more flexible and informal approach. Peer Leaders will be encouraged to engage in discussions on the Teams page, something which had worked with some success previously. In addition, a dedicated Peer Leader WhatsApp group has been established and will be moderated by our Senior Peer Leaders. This will foster collaboration among our Peer Leaders. We believe these approaches, despite being less structured, are a more appealing communication platform for the Peer Leader cohort, resulting in a better overall solution.

The new online format and structured approach to our training material should make it easier for our Peer Leaders to navigate and work through at their own pace. Specifically,

our trainee Peer Leaders will be able to complete the training in multiple sessions without feeling pressured to finish it all in one sitting.

Handbook

One of the initial training ideas was to develop a comprehensive Peer Leader handbook, serving as a definitive "how-to" guide. This idea was very popular, ranking as the second-most favored option in the survey. As a result, the handbook became the focal point and main content of the training material. The handbook was an extensive and informative document covering all aspects of being a Peer Leader; it offered valuable insights, best practices and general advice to equip our Peer Leaders with the essential knowledge and skills for their role. We ensured to include guidance on how to prepare before the workshop, what to expect during the workshop and tasks to complete after. The handbook was intended to become a go-to resource, supporting Peer Leaders throughout their journey and empowering them to positively impact the learning experiences of their peers.

The incorporation of humor into education and its effectiveness, especially within problem-solving exercises, was explored by Hu et al., (2017). Since the aim of PLTL is to encourage group discussion and problem-solving, we felt it was important to encourage Peer Leaders to integrate humor into their sessions where relevant and where they felt comfortable to do so. Therefore, the topic of humor was regularly mentioned throughout the handbook. Additionally, to help improve the memory recall of the Peer Leaders themselves, the handbook was written in an informal and slightly colloquial style. By using jokes and memes strategically, key topics were emphasized, making them more memorable. This approach not only fostered a more engaging and enjoyable reading experience for the Peer Leaders but also aided in reinforcing essential concepts.

The handbook was divided into several sections. The first section served as an introduction and covered the fundamental principles of PLTL and provided an overview of what Peer Leaders could expect. This involved outlining the role of a Peer Leader, specifically as a facilitator and not a teacher of the workshops. Furthermore, we presented the overall objectives of PLTL, how they are linked to the Queen Mary 2030 strategy as well as explaining the six critical components of PLTL (Gosser et al., 2010). Following this we provided the Peer Leaders with some generic information on the format of the PLTL program at QMUL and any course specific details, including how to take an attendance register.

A significant portion of the handbook was dedicated to exploring the worksheets and pre-work assignments. Strategies for effective annotation of worksheets, methods to break down complex questions and prompt discussion and debate as well as guidance on managing time efficiently were extensively covered. Additionally, we discussed the purpose of the pre-work assignment highlighting its role in fostering active engagement and preparation among

students before attending the workshop. Moreover, we offered guidance on how to link the key topics and content addressed in the pre-work assignment with the workshop questions themselves so students could see the value in attempting and engaging with the pre-work material. The importance of Peer Leaders attending the pre-workshop briefing was discussed, explaining how the Peer Leaders could use this meeting with the course organizers to revise the content, gain deeper insights into the workshop objectives and plan their approach effectively. By placing a large emphasis on planning, it ensured the Peer Leaders were prepared to host their workshops and capable of handling unexpected situations which may arise.

Having recognized that last year many Peer Leaders struggled the most with their first session, and lacked the confidence on how to start it, the next section of the handbook was dedicated to the Peer Leader's first workshop. This covered topics on how to introduce oneself, complete the online register and conduct icebreaker activities to create an inclusive learning environment. Suggestions were made on setting ground rules for the group, helping the Peer Leaders pre-emptively to tackle the key behavioral issues they may encounter. These primarily included mobile phone usage, a lack of concentration and varying levels of engagement, for example balancing interactions between the dominant student vs the shy and lacking confidence student. The in-person training day also addresses this in detail.

The handbook continued with the next section focusing on learning activities, offering a diverse array of techniques and approaches the Peer Leaders could employ in their sessions to improve knowledge retention and facilitate discussions. Among these techniques were rapid-fire questions, pair/group work, flipped learning, whiteboard usage, conversation starters and educational games. Each technique was accompanied by practical examples and guidance on how and when to apply them. Additionally, this section offered valuable insights on managing incorrect answers in a positive manner, fostering an environment where participation remains uninterrupted. Furthermore, approaches for differentiating different learners and tailoring activities to account for all learning abilities was also included (Jørgensen and Brogaard, 2021). This was accompanied by a statement explaining special learning differences and how to cater for them. Our goal in this section was to equip our Peer Leaders with a varied toolkit to keep their sessions engaging and interactive. To further enhance the workshop environment, details were provided on rearranging the table layout to best suit the group. This was important because choosing the correct table layout encouraged active participation and prevented the sessions from feeling like didactic lectures. Suggestions included arranging tables in a U-shape so that everyone faced each other and communal tables where students sat in small groups.

Towards the end of the handbook, a short section on effectively improvising activities was included due to the importance for Peer Leaders to be flexible with their plans and adapt

to their group's needs. Tips on quick thinking, adaptability and suggestions for easily improvised activities were included. Further emphasis was placed on planning multiple activities, again ensuring flexibility within the sessions. The psychology of learning was briefly explained, focusing on how it could be applied to the workshops. In particular, it was explained that whilst the concept of learning styles is commonly debunked within the literature (Harold et al., 2009), it is important to incorporate a variety of activities to suit the needs of all participants. By briefly explaining these concepts, the Peer Leaders were informed about why PLTL is effective and the theory behind it. For the keen students, there was further reading about the three categories of behavior learning (classical conditioning, operant conditioning, and observational learning) and ZPD available on the online QMplus page. The final section focused on tips for concluding the workshops, encouraging the Peer Leaders to allocate time at the end for students to ask them questions privately, and promoting a supportive and approachable learning environment. To reinforce the key points, a list of "do's and don'ts" was included at the end of the handbook, serving as a concise summary of the essential guidelines. With a comprehensive length of 22 pages, the handbook provided detailed and extensive training for the Peer Leaders. They were required to fully read it at least once prior to the in-person training day. Additionally, the handbook served as a valuable reference resource, allowing Peer Leaders to quickly refresh their knowledge on specific topics whenever needed. We believe by having a detailed resource at their disposal, Peer Leaders will be better equipped to confidently and successfully lead their PLTL sessions, ultimately contributing to a more rewarding and impactful learning journey for all.

Training video

When writing the handbook one of the challenges we encountered was effectively explaining how to engage all the workshop participants and how to respond to various situations that may arise during PLTL sessions. To address this, we developed a mock-workshop video that presented multiple instances requiring the Peer Leaders' attention and action. Our key aim was to demonstrate potential challenges that could occur during a workshop, without portraying PLTL as unenjoyable and potentially deterring new Peer Leaders. To strike the right balance, the video was filmed semi-comedically, using a light-hearted approach to maintain an engaging and relatable tone. Although the scenarios were presented humorously, they were promptly and realistically resolved to showcase effective facilitation techniques.

Before filming the video, we reached out to both faculty and students, asking for volunteers to participate in a mock-workshop video. We ensured that all volunteers provided explicit consent for the video to be utilized in future training programs indefinitely. Since the volunteers were purely from SBBS, we decided to base the video on a question from a previous Biology PLTL workshop. This question acted as an introduction to data visualization,

specifically asking students to discuss the issues with producing 3D graphs using a given example. Students were encouraged to discuss the issues and propose improvements. We deliberately chose this topic as it was generic and easily understandable by all Peer Leader trainees, regardless of their academic discipline.

The video starts with the Peer Leader taking a register and finding multiple students absent. This theme is further developed with a student arriving late and causing a disruption by over-apologizing for their tardiness. To deal with this, the Peer Leader politely asks the student to sit down and briefly explains what they have missed during the beginning of the workshop. Throughout the video, one of the volunteers portrays a dominant student who frequently interrupts and shouts out, effectively inhibiting other students from participating. Another student acts shy and refuses to contribute, answering questions with “I don’t know.” These examples were intentionally chosen to illustrate how Peer Leaders can address situations where one student's behavior negatively impacts the group dynamic. Another scenario depicted in the video involved a volunteer portraying the stereotypical teenager, disengaged, and spending the session on their phone. This representation was deliberately included to highlight another common challenge that Peer Leaders may encounter during their workshops - addressing issues related to students' lack of focus and disinterest. The remaining volunteer portrayed the role of an “ideal” student, actively participating in the discussions, demonstrating attentiveness, and engaging constructively with the workshop activities. By incorporating diverse scenarios, the video presents some of the challenges that our Peer Leaders may face.

The video then demonstrates the Peer Leader's adaptability in addressing these different personalities and varying levels of engagement within the group. For example, to manage the student spending time on their phone, the Peer Leader introduced a specific purpose for phone usage, requesting the group to use their phones for research on a concept. Furthermore, partway through the video, the Peer Leader modifies their approach to the session – rather than asking for “hands up” to answer questions, the Peer Leader randomly asks students to respond. This strategy ensures everyone has the chance to participate and creates a more inclusive learning environment. When the quiet student responds with “I don't know,” the Peer Leader demonstrates supportive behavior by offering a hint or suggestion to help them answer the question, empowering the student to engage in the discussion.

The video's portrayal of the group transforming from a disengaged slightly chaotic cohort to fully engage showcases the Peer Leader's ability to adapt and to enhance the learning environment and the workshop's quality. It provides a valuable example demonstrating how Peer Leaders can and should adapt their approach based on the group's dynamics and individual needs. Once recorded, the video was edited and posted on the QMPlus training page,

alongside a written summary detailing the challenges that occurred during the session and how the Peer Leader resolved each issue.

Training day

The results from the survey and feedback from our current cohort of Peer Leaders suggested our Peer Leaders may benefit from a full training day. Indeed, this option emerged as the most popular choice in the survey, signaling a strong interest and perceived value in having an intensive training day. Consequently, a full training day has been implemented as the penultimate activity and serves as a valuable opportunity to consolidate the training material covered so far and put into practice what the trainees had learnt. Attendance at the training day is mandatory as ensuring Peer Leaders are adequately trained is a critical component of any PLTL program. This is scheduled to take place in late September just before the start of the fall semester.

The format of day has been designed to encourage Peer Leaders to interact with others to foster a sense of belonging and teamwork among the Peer Leader cohort. Interactive activities such as icebreakers are embedded with more didactic elements to keep the trainees engaged. The content of the day reinforces the handbook covering the history of PLTL, how it aligns with the QMUL 2030 strategy as well as the benefits of PLTL to both students and Peer Leaders. Effective facilitation techniques and strategies are also addressed. To emphasize the importance of differentiation within the learning environment and why it is vital to recognize and account for different student personalities, a “color workshop” is also included. This was inspired by a workshop the authors attended during the 2023 PLTLIS conference where attendees were required to reflect on their own personality traits, how they view themselves and more importantly how others may view them.

The day concludes with our Peer Leaders participating in a mock PLTL session. This was the most popular response in the survey when participants were asked to rank which training elements would be the most beneficial. Since this was aimed at Peer Leaders from different academic disciplines, spanning both science and humanities, providing subject-specific questions would have been logistically challenging. Instead, we opted to choose topics such as Disney films, Star Wars, influential musicians and the London Underground (subway). Peer Leaders were allocated into groups and asked to select a question to lead. They were then given five minutes to plan their approach before leading a seven-minute workshop. When acting as a student, the participants would randomly select a personality card (e.g. good student, dominant student, late student, class clown) which they were required to follow. These personality cards made the activity more entertaining and allowed the Peer Leaders to practice their classroom management skills.

Training assessment

Upon completion of the training, our Peer Leaders are required to undertake an online assessment to assess their comprehension and retention of the key concepts covered during the training program. This assessment comprises a 25-question multiple-choice quiz (MCQ) format, designed to evaluate the Peer Leaders' understanding of the material. To qualify as a certified Peer Leader participants must achieve a minimum score of 70% or above on the MCQ. A certificate is awarded to Peer Leaders on successfully completing the MCQ. The online assessment serves as a crucial evaluation tool, ensuring that Peer Leaders have grasped the essential knowledge and skills necessary for their role as workshop facilitators. Furthermore, Peer Leaders who go on to deliver all of their workshops as well as attending the briefing sessions with the course organizer will have their role as a Peer Leader recognized on their Higher Education Achievement Report (digital transcript).

Conclusion

PLTL has emerged as a powerful educational approach that fosters collaborative learning and student engagement. At Queen Mary University of London, the PLTL program has been met with resounding success, prompting a continuous commitment to its enhancement and expansion. One key area we were keen to improve was our training of Peer Leaders; specifically, a comprehensive training program for Peer Leaders has been developed.

Co-creation with our students is at the heart of QMUL values. Consequently, not only are two of the authors of this paper Peer Leaders, but we actively sought the views and opinions from our previous Peer Leader cohorts to develop our training program. A range of different training materials were developed including an extensive handbook that served as a complete "how-to" guide for Peer Leaders. To complement the handbook, a mock PLTL workshop video was created, featuring diverse scenarios and challenges commonly encountered during PLTL sessions. An online course page was created on our OLE – QMplus which hosted all the materials as well as providing a forum for Peer Leaders to post questions to each other and to faculty. Recognizing the benefits of hands-on practical training, a full training day was implemented as an integral component of the training program. This brought together Peer Leaders from diverse academic backgrounds, encouraging networking and collaborative learning. Finally, to consolidate learning outcomes, a mandatory online assessment was included, comprising a 25-question multiple-choice quiz.

In summary, this project has culminated in the development of a comprehensive and impactful training program designed by our Peer Leaders for our Peer Leaders. Through a combination of different training materials and resources we are confident our Peer Leaders

will be equipped with the knowledge, skills, and confidence to lead engaging and effective PLTL sessions.

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