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Abstract

As Founding Dean of a new School of Pharmacy and Pharmaceutical Sciences in the United Kingdom, I have the rare opportunity to design a Masters in Pharmacy (MPharm) program from the ground up - one that reflects my educational philosophy and prioritizes approaches that help students thrive with confidence. Peer-Led Team Learning (PLTL) will be a cornerstone of this vision for pharmacy education. My experience developing a successful PLTL program at Queen Mary University of London (QMUL) demonstrated how peer-led approaches transform learning. What began as a small pilot in Chemistry evolved into a cross-disciplinary initiative adopted across several STEM subjects. This work showed that PLTL enhances academic performance while fostering essential graduate attributes such as communication, leadership, collaboration, and resilience, skills central to effective healthcare practice. In this article, I reflect on lessons learned from PLTL at QMUL and describe how these insights are informing the new MPharm curriculum at the University of Liverpool. Specifically, I explore how PLTL aligns with a spiral curriculum model, supports the professional behaviors outlined in the General Pharmaceutical Council's (GPhC) standards, and builds the confidence and reflective capacity required for students to succeed as compassionate, capable future pharmacists.

Keywords: Peer-Led Team Learning, PLTL, Pharmacy, Confidence, Leadership, Curriculum

What is Peer-Led Team Learning?

Peer-Led Team Learning (PLTL) is an evidence-based teaching model where students work together in small groups (usually 8-12) on structured and challenging problems (Woodward, et al., 1993; Gosser, et al., 2001; Gafney & Varma-Nelson, 2008). The questions usually scaffold with successive degrees of complexity, have more than one correct answer and can be attempted and solved in multiple ways. They are designed to build knowledge, be debated, controversial at times and multi-faceted. There is no simple one-word answer. These workshops are facilitated by a trained Peer Leader – that is a near peer who has recently completed the course successfully. Rather than delivering content and teaching, the Peer Leader facilitates discussion and critical problem-solving, prompts critical thinking and most importantly ensures that all voices are heard. This collaborative environment stimulates oral communication and teamwork while encouraging students to take ownership of their learning. There are multiple studies that demonstrate the impact that PLTL can have on a student's academic performance, course completion rates, outcomes and confidence as well as narrowing attainment gaps (Tien, et al., 2002; Snyder, et al., 2016; Gosser & Roth, 1998; Wilson & Varma-Nelson, 2016). For the Peer Leaders, the experience provides an opportunity to professionally develop areas of leadership, teamwork, communication and empathy, that are directly applicable to professional roles in healthcare and beyond.

Lessons from QMUL

My experience implementing PLTL at QMUL has been a defining chapter of my career (Shahid, et al., 2022). What began as a pilot in first-year chemistry to support students' problem-solving skills grew into a cross-disciplinary program adopted in Biology, Biochemistry, Business and other STEM subjects. This success was built on the collaboration of scholars from a dedicated PLTL Team and Advisory Group, all driven by a shared vision for student-centered learning that also fosters confidence, resilience, and academic growth.

Collaboratively, we developed resources with Peer Leader input to support our students, established a robust Peer Leader training program (Christian, et al., 2023) – again co-created with our Senior Peer Leaders, and built a model of student partnership that empowered both our Peer Leaders and our student participants. Along the way, we celebrated key milestones, including a recent AdvanceHE CATE award, published case studies (Howell, et al., 2024), presented at conferences (including those delivered with our Peer Leaders) with demonstrable improvements in student outcomes. Each achievement stands as a testament to the strength of our shared commitment. We also marked these successes

through celebration events for our Peer Leaders, in recognition of their invaluable contributions.

Building the PLTL program has profoundly shaped me as an educator. It has influenced my teaching philosophy, reinforcing my belief that genuine transformation occurs when students are empowered to learn from and support one another and allowing for time to reflect in collaborative environments. The success and recognition related to the positive impacts of PLTL directly contributed to my promotion to Personal Chair and gave me the confidence, and evidence base, to step into my current role as Founding Dean. PLTL has therefore been instrumental not only in advancing student success but also in shaping my own professional journey.

Why I will take PLTL forward into Pharmacy

As Founding Dean, I am not only helping to design an MPharm program from the ground up but also re-shaping the educational culture and vision of a new School of Pharmacy and Pharmaceutical Sciences. In this role, I want to embed approaches that reflect the values I believe in, specifically collaboration, confidence-building, and active and reflective learning. PLTL embodies all these principles.

My experience at QMUL showed me how PLTL can transform student learning journeys. I have seen students who were initially uncertain of their ambitions and abilities grow into confident, capable problem-solvers. Peer Leaders, in particular, developed empathy, teamwork, and leadership, skills that pharmacists require to counsel patients, collaborate with healthcare teams, and take on supervisory roles. These transferable attributes are what make PLTL a natural fit to compliment and strengthen healthcare education.

A model for professional education

The MPharm curriculum must integrate scientific knowledge with professional practice, focusing on person-centered care, communication, and clinical decision-making. The PLTL approach provides a powerful means of connecting these domains by engaging students in authentic, problem-based tasks within a collaborative environment.

Through PLTL, Peer Leaders can guide participants through exercises such as the analysis of prescriptions, identification of dispensing errors, formulation problem-solving, and medication safety challenges. They also facilitate activities such as patient counselling role-plays and scenario-based discussions that encourage the integration of pharmacological, pharmaceutical, and clinical reasoning. In this way, students learn to move fluidly between the science and practice of pharmacy, developing confidence and expertise in both their technical competence and professional judgement.

These experiences directly support the development of key professional capabilities embedded in the GPhC 2021 Standards for the Initial Education and Training of Pharmacists. For example, students will:

- Develop person-centered care and collaboration by communicating clearly with, and responding to the needs of patients and care givers;
- Strengthen professional practice, including teamwork, responsibility and ethical decision-making in multi-professional settings;
- Apply the science behind pharmacy to clinical problems - integrating pharmacology, medicinal chemistry, pharmaceutics and formulation, safety and therapeutic reasoning;
- Build habits of lifelong learning and reflective practice, routinely evaluating their decisions, seeking feedback, and enhancing their competence and professional judgment.

By embedding PLTL within the MPharm curriculum, students not only deepen their scientific understanding but also develop the professional competencies and reflective habits essential for contemporary pharmacy practice.

A natural fit for a Spiral Curriculum

The MPharm program at Liverpool is structured around a non-modular spiral curriculum, an approach that emphasizes integration, continuity, and progressive complexity in learning. First articulated by Bruner (1960), the spiral curriculum model proposes that key concepts should be revisited at intervals, each time at a more sophisticated level and in a new context, so that students build deep, long-lasting knowledge. Harden & Stamper (1999) extended this model to medicine, arguing that a spiral design promotes cumulative learning and supports the integration of scientific knowledge with clinical and professional skills and practice.

Spiral Curriculum in practice

To illustrate how the spiral curriculum operates within the MPharm program, consider the following progression:

- *Year 1:* Foundations of drug action, formulation principles, and introductory patient safety concepts.
- *Year 2:* Integration of pharmacology and pharmaceutics with simple patient case studies and dispensing exercises.
- *Year 3:* Application of scientific principles to complex clinical scenarios, including medication optimization and interprofessional collaboration.

- *Year 4:* Advanced therapeutics, leadership in clinical decision-making, and preparation for independent prescribing.

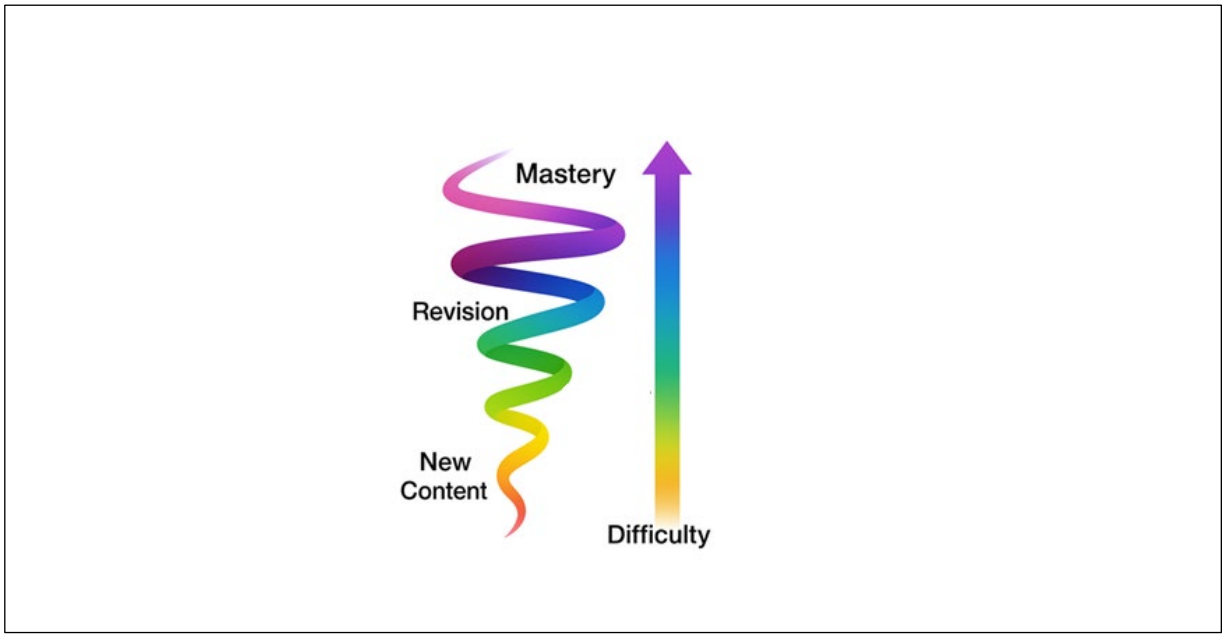

Figure 1. Spiral Curriculum (Harden & Stamper, 1999)

This design ensures that students revisit core concepts multiple times, each iteration adding complexity and professional context. PLTL workshops reinforce this spiral by enabling students to apply earlier learning in new scenarios. For example, a Year 3 PLTL session might revisit pharmacokinetics introduced in Year 1 but apply it to a polypharmacy case requiring nuanced therapeutic reasoning.

A non-modular spiral structure is particularly well suited to pharmacy education, where safe and effective practice depends on the ability to integrate pharmacology, pharmaceutics, and medicinal chemistry with clinical reasoning and the practice of pharmacy**.** Traditional modular programs often fragment learning, isolating scientific theory from professional application. By contrast, a spiral curriculum enables continuous reinforcement of pharmaceutical-related scientific principles (such as drug formulation, pharmacokinetics, and therapeutics) through progressively complex, practice-based experiences. This integrated design also supports the longitudinal development of professional attributes, communication, ethical reasoning, and reflective practice, that are essential to the General Pharmaceutical Council's learning outcomes for initial education and training.

Within this framework, Peer-Led Team Learning (PLTL) serves as a natural pedagogical partner to the spiral curriculum. It brings the model to life by creating structured, collaborative opportunities for students to revisit and apply concepts introduced earlier in the program. Guided by Peer Leaders who have recently navigated these same stages, participants benefit from both cognitive scaffolding and social continuity, reinforcing earlier learning while deepening understanding through authentic, practice-based tasks. In this way, PLTL exemplifies the spiral in action: knowledge is reinforced, integrated, and extended within a supportive community of learners. The result is enhanced academic coherence, professional authenticity, and the development of confident, reflective, and career-ready graduates.

Beyond supporting academic integration, PLTL also cultivates the personal and professional behaviors essential for modern pharmacy practice. The collaborative, reflective, and student-led nature of PLTL aligns closely with the seven habits of highly effective people described by Covey (2020), which provide a widely recognized framework for personal leadership and professional growth. This framework provides a powerful lens for understanding the behaviours expected of pharmacists, behaviours that extend beyond technical competence to include leadership, ethical decision-making, and patient-centered care.

Unlike introductory STEM courses, where PLTL primarily supports academic achievement, in pharmacy education PLTL becomes a vehicle for professional identity formation. Each habit maps directly onto the realities of practice:

- *Be proactive*: Anticipating risks and acting decisively mirrors pharmacists' responsibility for patient safety; Peer Leaders model this by initiating discussion and managing group dynamics;
- *Begin with the end in mind*: Goal-oriented thinking underpins safe prescribing and dispensing; PLTL sessions mirror this through structured learning outcomes;
- *Put first things first*: Prioritization during problem-solving reflects clinical triage and patient safety;
- *Think win–win*: Collaborative learning echoes the interprofessional teamwork essential in healthcare;
- *Seek first to understand, then to be understood*: Empathetic listening during role-plays builds person-centered communication;
- *Synergize*: Group problem-solving mirrors multidisciplinary collaboration in practice;
- *Sharpen the saw*: Reflection and feedback loops encourage continuous professional development—a regulatory expectation for pharmacists.

By embedding these habits in PLTL, students develop not only academic competence but also the leadership and interpersonal skills essential for pharmacy practice. This alignment with GPhC standards reinforces PLTL's role as a bridge between scientific knowledge and professional capability. Our previous work (Michael, et al., 2024) demonstrated that Peer Leaders naturally embody these habits through their facilitation practice. Furthermore, these habits mirror the core professional capabilities defined by the GPhC particularly person-centered care, teamwork, leadership, and reflective practice, highlighting how PLTL simultaneously supports intellectual progression and professional identity formation.

Final Reflections

As I move into this new chapter as Founding Dean, I recognize that PLTL has been more than a teaching innovation; it has been pivotal to my growth as an educator and leader. The program's success at QMUL helped to shape my educational philosophy, strengthen my belief in collaboration, and ultimately supported my promotion to Chair. More importantly, it provided the foundation of experience and values that have enabled me to step confidently into this new leadership role.

I will carry these lessons with me into pharmacy education. For me, PLTL is not simply a method but a philosophy, one that prioritizes shared learning, reflective growth, and genuine partnership. As we build this new School of Pharmacy, I will be crucial to create a culture where these values thrive, shaping graduates who are not only knowledgeable but also compassionate, confident, and ready to lead. In this way, the principles that shaped PLTL, partnership, reflection, and continuous growth, will continue to integrate both the curriculum and the community we are building within the new School of Pharmacy and Pharmaceutical Sciences at the University of Liverpool.

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