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# The ABCs of the History of PLTL Implementation at Washington University in St. Louis

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## Abstract

Peer-Led-Team-Learning (PLTL) is a long-running, highly successful academic support program fully embedded in select course pedagogy at Washington University (WashU.) in St. Louis. This paper's title, *The ABCs of the History of PLTL at Washington University in St. Louis*, is intentional and the "*ABCs*" themselves convey the core elements that have contributed to the tremendous success of PLTL at WashU, and to the integration of PLTL into STEM academic culture at WashU - "A" for *Attitude*; "B" for *Behavior*; and "C" for *Collegiality*. However, the most impactful element associated with the success of PLTL at WashU is the final letter in the "*ABCs*" string – the "s". Though not capitalized, the "s" is arguably the most critically important component in the history, and in the efficacy and effectiveness, of PLTL at WashU. The small "s" represents *serendipity*.

Keywords: Peer-Led-Team Learning (PLTL), Serendipity, Attitude, Behavior, Collegiality, academic mentoring, student services, WashU

#### **Background**

Peer-Led-Team-Learning (PLTL) is an example of an initiative (Cracolice & Deming, 2001; Gosser et al., 2001) that has become an exemplar of high impact educational practices (Kuh, 2008). PLTL is a long-running, highly successful academic support program fully embedded in select course pedagogy at Washington University in St. Louis (WashU). Recently, WashU hosted the tenth annual conference of the Peer-Led Team-Learning International Society (PLTLIS) (June 2022). The conference schedule included a Friday evening themedreception with the subject, *Highlighting the PLTL Programs at Washington University in St. Louis*. During the reception, key contributors to the success of PLTL at WashU shared their reflections on the impact of PLTL at WashU. I was invited to reflect, specifically, upon the history of PLTL at WashU, since I was involved early on in supporting the pilot and subsequent launch of PLTL at WashU. After the presentation, I was invited to submit a paper capturing the essence of those remarks. This paper is my response to that invitation.

#### Introduction

This paper has been entitled, *The ABCs of the History of PLTL at Washington University in St. Louis.* The titling is intentional and the "*ABCs*" themselves convey the core elements that have contributed to the tremendous success of PLTL at WashU, and to the integration of PLTL into STEM academic culture at WashU - "*A*" for *Attitude*; "*B*" for *Behavior*; and "C" for *Collegiality.* However, the most impactful element associated with the success of PLTL at WashU is the final letter in the "*ABCs*" string – the "*s.*"

Though not capitalized, the "s" is arguably the most critically important component in the history, and in the efficacy and effectiveness, of PLTL at WashU, as it generally is with many other enterprises (Giordano, 2012). The small "s" represents *serendipity*. PLTL at WashU has been a game-changer for improving student academic outcomes in select STEM introductory courses (Hockings, DeAngelis, & Frey, 2008). As powerful as the tool of PLTL is, in reality, serendipity has been the most significant contributor to the success and institutionalization of PLTL at WashU. Figure 1 illustrates how, together with the A, B and C, serendipity forms the DNA for the implementation and success of PLTL at WashU. A summary of the "*ABCs*" contributing to the success of PLTL at WashU necessarily starts with the "s" – serendipity.

#### <u>s - Serendipity</u>

Mark De Rond asserts, "Rather than being synonymous with chance, serendipity results from identifying "matching pairs" of events that are put to practical or strategic use" (2014). Based on this perspective, the presence of key leaders, development of exploratory programs, launch of new initiatives and the creation of administrative structures were the independent components that synergistically aligned to facilitate the successful cultivation of PLTL at WashU in a happy and beneficial way.

In 1991, I moved to St. Louis, Missouri to assume departmental leadership of a large consumer product department for a Fortune 50 company. However, shortly after assuming this promotion assignment, I was "called" to the pastorate of a local, historic, predominantly African American congregation in West St. Louis County. In some religious traditions, the inner drive and desire to serve in a formal ministry role as part of one's obedience to God is referred to as "the call" (Stark, 1965). My acceptance of "the call" was the first in a series of aligning events that contributed to a favorable environment for implementation of PLTL at WashU.

At the completion of the corporate assignment, I had successfully met, and exceeded, delivery of the expected outcomes. I was scheduled to return to the corporate office, receive a promotion and my next assignment, and continue with my career development and advancement. However, I did not feel "the call" away from the congregation. I decided to separate from the company and remain as leader of the local congregation. I also decided to forgo securing an engineering job in the area, and to pursue a longstanding ambition, my doctorate in chemistry.

I applied, and was admitted, to the doctoral program in chemistry at WashU in 1994. In that same year, Dr. Regina Frey, currently the Ronald and Eileen Ragsdale Professor of Chemical Education at the University of Utah, started her academic career at WashU as a Lecturer in Chemistry. Dr. Frey's priority focal areas included improvement of the chemistry pedagogy and student outcomes in the General Chemistry courses at WashU. One of Dr. Frey's first contributions was the introduction of recitations. I was an entering graduate student with a professional background and some teaching experience, and, I was one of the four graduate students selected to work with Dr. Frey as inaugural recitation instructors. Though I would receive a Matheson Fellowship to focus on research, I enjoyed teaching and continued to work with Dr. Frey as a recitation instructor. Later, I entered a phase wherein my lab work was complete, and I was primarily working on writing the dissertation. Though I had yet to defend, the Department of Chemistry afforded me the unique opportunity to serve in an expanded role as post-doctoral lecturer in chemistry. The

role required communicating with General Chemistry faculty; preparing the recitation lecture guides; coordinating the graduate teaching assistants' recitation schedules; developing and posting course quizzes, problem sets and solutions; and leading exam prep, exam review, problem-solving and workshop sessions for students. I accepted the role and continued reporting to Dr. Frey, now the Senior Lecturer in Chemistry.

After one year, and despite invitations to apply to several other post-doc opportunities at WashU and elsewhere, I did not feel the "call" away from the church and decided against pursuing tenure track positions. I actually separated from WashU after the post-doctoral year, but the then Department of Chemistry Business Manager, Dr. Edwin Hiss, contacted the late James E. McLeod, then Dean of the College of Arts and Sciences and Vice Chancellor for Students. Dean McLeod and I had not yet met, and I was unaware of his academic and professional background. Unbeknownst to me at the time, Dean McLeod was a Morehouse College alumnus, as am I. Interestingly, Morehouse College was the institution where the PLTL International Society (PLTLIS) formally launched in 2011 (Dreyfuss, 2013). Dr. Hiss felt I was an asset to the department and to the university and besought Dean McLeod to meet me and possibly find a way for me to remain at WashU.

Dean McLeod's office arranged a meeting and, afterwards, he suggested that I apply for an open position in Student Educational Services (SES), the department housing the federal Department of Education funded TRIO *Student Support Services* (SSS). TRIO SSS supports first generation and low-income students and students with disabilities to persist and graduate with baccalaureate degrees. I applied, and Dr. Marva Redd hired me as a Retention and Academic Advisor with additional responsibility for the academic efficacy of the students selected as TRIO program participants. It turns out that Dean McLeod had provided SSS with additional financial resources to provide tutoring for their students. However, at the time of my hiring, the SSS tutoring budget was underutilized, and the additional monies had not been spent. Once Dean McLeod knew that I was hired, he met with me, again, charged me to ensure student success, by spending all the money and to request additional resources as needed.

The term "tutoring" was pejorative at WashU, at the time. It was not unusual for some faculty, particularly in STEM, to comment that if students needed tutoring, they should not have been admitted to WashU. The students internalized negative perspectives about help-seeking behavior among themselves as well. I recognized that a change in context, concept and approach was necessary, and I immediately set out to create an academic support structure that would eliminate stigma and promote positive, help-seeking behaviors. I called the new approach "academic mentoring" and implemented workshops to

provide the skills training those serving as "academic mentors" would need to provide assetbased academic support to students.

In 2003, Dean McLeod announced the Educational Skills Initiative (ESI) (Schoenherr, 2003), led by the late Dr. Robert Koff. Cornerstone was launched, a comprehensive, onestop shop for critical student academic support services that consisted of SES, the Disability Resource Center (DRC) and the newly established Academic Mentoring Program (AMP). Shortly after formal recognition of AMP in this new entity, I met with several key figures at WashU – Dr. Ron Freiwald, Professor of Mathematics; Dr. Martin Israel, Professor of Physics; and Dr. Regina Frey, Senior Lecturer in Chemistry – all of whom had oversight of the undergraduate curricula in their respective departments. They endorsed the "academic mentoring" approach, provided advocacy for the approach in their respective departments, and encouraged students to utilize this supplementary and complementary resource. This included standardizing the inclusion of Cornerstone resources, including academic mentoring, in all relevant course syllabi. AMP started promoting the concept: Cornerstone: *The place for students who make A's and for students who want to make A's*.

The growth of AMP reached a point where increased utilization of the resources started to infringe on the needs of other areas, and budget constraints no longer allowed *carte blanche* to receive additional resources for the still-growing enterprise. AMP responded by launching several fruitful entrepreneurial, value-added, fee-based and niche academic transition programs. AMP also started expanding into the realm of encouraging students to work together in small groups, partially for economies of scale and partially as an intentional approach to improve academic outcomes. AMP met with Professor R. Keith Sawyer, currently the Morgan Distinguished Professor in Educational Innovations at the University of North Carolina at Chapel Hill, then Associate Professor of Education at WashU, to understand the elements of effective learning in study groups, in order to develop processes for training study group leaders (Sawyer & Berson, 2004). This helped start a paradigm shift academically for students used to working alone or in one-to-one (tutoring) situations. It contributed to students seeing even peers in the course as resources and partners in learning in facilitated conditions. AMP promoted the idea that *interactive, peer-involved and peer-led learning is an essential element in the educational process and not an optional one*.

Dr. Frey received a two-year Workshop Project Associate (WPA) grant (Gafney and Varma-Nelson, 2008), funded through a grant from the National Science Foundation (NSF) to the national PLTL Dissemination Project, for a small pilot PLTL project at WashU. Dr. Frey aspired for the pilot program to be twice as large as the grant funding allowed. Dr. Frey, knowing of the work Cornerstone was doing with study groups, contacted AMP to

propose a partnership on team-based, study group learning by supplementing the PLTL grant funding to achieve the larger pilot size. I agreed to the partnership. After the twoyear pilot, the results were unequivocal – PLTL significantly improved outcomes for all participants regardless of background (Hockings, et. al., 2008). Dr. Frey envisioned growing PLTL to be available to every student who wanted to participate. Given the size of the general chemistry courses, the Department of Chemistry was unable to commit to funding PLTL out of the departmental budget. Dr. Frey contacted me about on-going budget support for the initiative. AMP was still increasing in utilization and budget at the time, and the study group approach was becoming a centerpiece of provided services. The study group approach also relieved some of the budgetary stresses, so working to formalize and expand PLTL over time was practical. It also happened to be budget time. I prepared a budget proposal that included an expanded PLTL program for chemistry, and proposed it to Dean McLeod. The budget proposal was accepted, and PLTL became funded by AMP, now referred to as Academic Programs (AP), and implemented by the Department of Chemistry in a unique, for WashU, partnership.

Not long afterwards, Dr. Frey convened a full-day meeting to plan for a larger scale expansion of PLTL into several other areas. In addition to securing departmental approval, a key component would be the selection and training of Peer Leaders. During the meeting, two courses were proposed, and an initial syllabus sketched out, to address the critical training and on-going support needed by current and future Peer Leaders. At one point during this process, I left to attend a different meeting. When I returned, Dr. Frey announced that I would be pleased with a decision the group had made in my absence. The group had decided to enshrine the concept of "academic mentoring" in the names of the two courses for Peer Leaders. The Seminar in Academic Mentoring (SAM) was the name assigned to the core pedagogy course that all first time Peer Leaders have to take to be qualified to serve in the role. Practical Applications of Academic Mentoring (PAAM) was the name assigned to the on-going support course that the Peer Leaders take every semester they serve in their role (Hockings, et. al., 2008; Peer-led Team Learning, 2022).

These names served to commemorate the effort to institutionalize and normalize "academic mentoring" and to destignatize and affirm help-seeking behavior.

PLTL became a centerpiece of student-centered academic support. PLTL became enshrined in the general chemistry course and expanded to the calculus and introductory physics courses. The School of Engineering implemented a variant of PLTL, called Problem-Solving Teams (PSTs), and implemented PSTs into the introductory biomedical and chemical engineering courses (Academic advising and support, McKelvey School of

Engineering, 2022). A team of colleagues in Cornerstone explored incorporation of universal design principles into PLTL (Street, Koff, Fields, Kuehne, Handlin, Getty, & Parker, 2012). Academic Programs continued to expand other academic support programs and launch entrepreneurial initiatives, including in-house GRE, LSAT and MCAT prep courses. Academic Programs is now The Learning Center (TLC) and is part of the Center for Teaching and Learning (CTL), an entity co-founded by Dr. Regina Frey.

Serendipity has been a central component in the history and success of academic support programming at WashU, particularly through PLTL. The serendipitous alignment of people, programs and processes synergistically aligned to facilitate the inculcation, cultivation and institutionalization of PLTL at WashU. In addition to serendipity, WashU benefitted from the existence of several enduring values and principles. These "*ABCs*" have also been formative and supportive for the success of PLTL at WashU.



Figure 1: The DNA of Peer-Led Team Learning at Washington University in St. Louis.

**Figure 1.** This image illustrates how, together with the A, B and C, serendipity forms the DNA for the implementation and success of PLTL at WashU.

The ABCs will be addressed next.

#### <u>A - Attitude</u>

WashU operated under an attitudinal ethos that centralized "know every student by name and by story." This ethos was most clearly attributed to the late Dean James McLeod in the book *Habits of Achievement: Lessons for a Life Well-Lived*, a collection of invited essays and reflections submitted by the students, faculty, colleagues, friends and family members who knew him best, edited by Mary Ellen Benson (McLeod, 2013). This ethos created an institutional cultural mindset, with principles and values, which centered the student and which facilitated a dynamic wherein all members of the institution, regardless of their positions, could understand the connection between their roles and the success of each student.

This attitudinal ethos manifested itself in several principles, values and approaches that permeated the approach to student academic success. These include the following:

- Every WashU student has earned the right to be admitted and is capable of being successful at WashU;
- All WashU students are well-prepared, though they may be differently prepared; it is the institution's responsibility to help them navigate those differences;
- Collaborative, interactive, peer-involved and peer-led learning is an essential component of the undergraduate education experience and not an optional component;
- There should be minimal to no differences in student outcomes across disciplinary areas and/or intersectional identities; when differences do occur, look at 'what's going on' with the system as thoroughly, and even more so, than 'what's going on' with the student;
- Rigorously track, regularly review, widely communicate, and strategically utilize student outcomes data.

WashU aspires to be the best place for an undergraduate education. This attitudinal ethos aligns well with that aspirational goal.

#### <u>B - Behavior</u>

Multiple, intentional displays of behavior demonstrate the impact of WashU's attitudinal ethos and are prevalent at the institution. WashU faculty and staff:

• Regularly model, promote and celebrate help-seeking behavior;

- Explicitly discuss the concept of open mindset behavior and do not stigmatize specific types of mindset behavior (Dweek, 2006);
- Rigorously, intentionally and consistently employ asset-based language and approaches (e.g., "academic mentoring" versus tutoring) when interacting with students and reviewing and discussing student outcomes data; and
- Graciously give and receive grace during this continual learning process.

This behavioral approach helped WashU navigate initial challenges in developing PLTL, and other infrastructure, to support student success.

#### C - Collegiality

WashU, like most academic institution of higher education, has two distinct divisions – Academic Affairs and Student Affairs. During the period within which PLTL launched, the distinctions between the divisional roles in student success was muted. This was due, in large part, to the fact that the late Dean James McLeod held both the role of Dean of the College of Arts and Sciences, the largest undergraduate division, and the role of Vice Chancellor for Students, with responsibility for the experience of all undergraduate students, regardless of university division. Though the roles have been and will undoubtedly remain split going forward, that fortuitous alignment helped evolve a strong culture of collegiality, characterized by collaboration, cooperation and compromise. Collegially, we accepted the following truths:

- We are all partners in the educational enterprise;
- We do not all do the same things in the same way, but we are all working towards the same outcomes.

The Departments of Chemistry, Mathematics and Physics, for example, have slightly different PLTL implementations, but they all deliver results and they all work together to ensure the efficacy and effectiveness of PLTL.

#### **Conclusion**

PLTL is a proven high impact educational practice. The implementation of PLTL at WashU has been significantly beneficial in minimizing differential outcomes for students in core, introductory STEM courses regardless of background or pre-matriculation preparation. PLTL at WashU has been successful due to the fortuitous timing wherein the independent alignment of the presence of key leaders, developing exploratory programs,

launching of new initiatives and creation of administrative structures facilitated the successful implementation of PLTL, and its offshoots, in a favorable way.

The fortuitous alignment of a professional relationship among key, influential institutional leaders, the presence of central administrative support and resourcing, the promotion of a student-centered ethos and the institutional aspiration to be the best place for an undergraduate to receive an education, were the serendipitous elements that facilitated the successful introduction and subsequent institutionalization of PLTL into WashU.

Dr. Regina Frey is, arguably, the most important person in this enterprise. Dr. Frey's vision for renewing and revamping the student experience and outcomes in the general chemistry courses were the foundation for much of her initial, and subsequent, work on teaching and learning. Dr. Frey's vision overlapped, in timing and in focus, with the visions of a former graduate student and a former Dean. It was the serendipity of the confluence of these visions, coupled with the elements of institutional aspiration, behaviors and collegiality, which facilitated the launch of one of the most consistently, highly successful student academic support structures at WashU.

Dr. Frey and I did not agree on everything. However, we agreed on the most important things. We either worked out the other matters over time or decided they did not need to be worked on, much less worked out! The results speak for themselves.

The central characters, and many of the other important, though unmentioned, contributors, have moved on to other places, roles and focal areas. Yet, every academic year, entering students, even before they register for classes, know about PLTL, are already asking how to register for PLTL or are asking why WashU does not have PLTL for one of several other large, introductory courses. Figure 2 summarizes the current size and impact of PLTL at Washington University in St. Louis.



Figure 2. The current size and impact of PLTL at Washington University in St. Louis (2021-2022).

WashU has gone from being a place where some faculty would question the need for, and some students would avoid pursuing, extracurricular academic support services to being a place where help-seeking behavior, while not yet ubiquitous, is now more of the norm. Discussions are beginning, and continuing about the possibility of implementing PLTL in other, non-STEM areas. Time, and serendipity, will show how PLTL will expand at WashU in the future.

#### <u>Acknowledgments</u>

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