Weathering the Storm: Unexpected Benefits of a Professional Learning Community

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ABSTRACT

Over the course of four years, our small team of informal marine science educators at the University of Texas-Austin Marine Science Institute and the Mission-Aransas National Estuarine Research Reserve established a professional learning community (PLC) to strengthen and advance our own professional practice and improve the education programs we designed and facilitated. During this period of growth and community-building, we experienced the devastation of a category 4 hurricane and the COVID-19 pandemic. Despite the turmoil of these events, our team was able to rely upon the PLC's established routines to maintain a sense of normalcy, as well as a trusted, safe, and supportive environment to work through the impacts to our professional practice. The upfront investment of time and staff energy yielded unexpected value and power by getting our team through two highly disruptive events and created a team that showed up, stayed committed, collaborated, and continued to work toward our shared goals. While all of our informal marine science education colleagues around the nation shared the impacts of the pandemic, our team had already weathered the devastation of a hurricane and reaped the benefits of our PLC, setting us up to be even more responsive and resilient to the pandemic. This article seeks to reflect on what contributed to our resilience, how we might use that information to (re)build our programs going forward, and how others can use our story to examine their own investment in their teams and programs through a PLC lens.

INTRODUCTION

Over the course of four years, our small team of four informal science educators at the University of Texas-Austin Marine Science Institute (UTMSI) and the Mission-Aransas National Estuarine Research Reserve (Reserve) cultivated a professional learning community (PLC) to strengthen and advance our own professional practice and improve the education programs we designed and facilitated. During this period of growth and community-building, we experienced the devastation of a category 4 hurricane and the COVID-19 pandemic. Despite the turmoil of these events, our team was able to rely upon the learning we engaged in together to maintain a sense of normalcy, as well as a trusted, safe and supportive environment to work through the impacts to our professional practice. The upfront investment of time and staff energy yielded unexpected value and power by getting our team through two highly disruptive events. We created a team that showed up, stayed committed, collaborated, and continued to work toward our shared goals. In response to the disruption to our practice, it would have been reasonable to see individuals prioritize their own interests and focus only on the tasks or programs in front of them. Instead, we saw solidarity, perseverance, and resilience.

In times of trauma and stress many people and groups move to operating off of conditioned 'reflexes' or habits (Neal, Wood & Drolet, 2013); the protocols, practices and routines that allow them to continue operating at a base level. After two major and devastating events at our marine science institution we were surprised to discover how dynamic our educator habits were and the ways in which this enabled us to be more resilient and responsive to the impacts on our practice. While all of our informal education colleagues around the nation shared the impacts of the pandemic, our team had already weathered the devastation of Hurricane Harvey and reaped the benefits of our PLC. We believe this set us up to be even more adaptable during the pandemic and invest more heavily in our PLC. We, the authors, share our experiences and our lessons learned to champion the investment in and nurturing of PLCs to advance educator professionalism and practice within our field. We reflect on what contributed to our perseverance and how we might use that information to (re)build our teams and programs going forward, and how others can use our story to examine their own investment in their teams and programs through a PLC lens.

LEARNING IN PROFESSIONAL LEARNING COMMUNITIES

A professional learning community (PLC) is a group of professionals who engage in learning about their practice together; they share and critically examine their practice in a way that is ongoing, reflective, collaborative, inclusive, learning-oriented, and that promotes growth (Stoll, et al., 2006; Webster-Wright, 2009). Examining one's practice can include deepening relevant knowledge, connecting practice to research, strengthening teaching skills, and improving learning experiences for their audiences. As a community, colleagues develop shared language and understanding to articulate their thinking and work, and in turn cultivate a culture of learning and reflection in the workplace. Making a PLC requires commitment, promotes interdependence, and supports both the individual and the team. Members are accountable to one another to achieve their shared goals and work in transparent, authentic settings that support their improvement. When PLCs are situated in organizations with a culture and system that values professional development and growth, the community's benefits are enhanced (Peterson 2002).

Although PLCs have been used in formal learning environments for some time, the idea of PLCs in informal learning environments is a newer trend. It's a popular movement within professional environments to 'be part of' or 'support' PLC work. While the characteristics or qualities of a PLC are well documented in the professional, community, and organizational learning literature (Stoll et al. 2006), the study and understanding of these groups is limited in informal science learning environments in general and marine science education in particular. As our field recovers from the COVID-19 pandemic, we argue it's valuable to anchor the rebuilding efforts in PLCs. But, we also know simply calling a group of colleagues a PLC doesn't make it truly a PLC. How are PLCs built? What is needed to sustain one? What are the barriers (other than funding)?

At the heart of any PLC is dedicated time and space for educators to be learners of their professional practice in order to grow and advance (Tran & Halversen, 2021). Tran, Gupta, & Bader (2019) articulated that as educators, we encourage learning as a lifelong and life-wide pursuit for

our learners, yet we often fail to champion the same support and encouragement for our own learning as professionals. We leave our professional growth, and that of our peers, to stand-alone efforts and use transmissionist (I'll tell you what you need to know) models typical of the deficit perspective we avoid in our own teaching practice. Tran et al. (2019) argued, whether intentional or not, these features underlie our industry's mindset toward professional development and don't reflect what we know about how people learn or how to transform practice. Admittedly, our group of educators embodied this mindset in our own development until we had the opportunity to invest in building our own PLC using the *Reflecting on Practice*™ (RoP) program.

We share our experience in this journey as food for thought as the informal marine science education field considers how to build back better and stronger. First, we will describe our context and PLC efforts before the storms. Reflecting on this recall, we share three key qualities that we believe were fundamental to the strength of our PLC. Finally, we provide suggestions for building your own PLC.

SETTING THE CONTEXT

BEFORE THE STORMS

UTMSI and the Reserve are in the small town of Port Aransas, Texas, which neighbors the suburbs of Corpus Christi. We are one of a handful of other informal STEM, marine, or environmental education organizations serving the coastal communities in that region. It is not unusual for National Estuarine Research Reserves, and similar preserves or reserves, to be situated in remote or less accessible locations (e.g., no public transportation) where small staff teams are common.

Typical of marine centers and reserves, our small team served thousands of learners every year through a variety of STEM and environmental learning experiences for students, families, adults, and youth. These programs immersed learners in activities and experiences that inspired curiosity, made science connections, promoted stewardship, and built an appreciation for our aquatic and coastal environments. A significant amount of our programming focused on places in our facilities, such as visitor education centers, an animal rehabilitation center, and adjacent marine environments. Most learners participated in school field trips, teacher workshops, interpretive tours, summer camps, and visitor activities, with a smaller number served through outreach events, such as community festivals, classroom visits, and activities conducted at partner sites. Our virtual or web-based engagements were extremely limited, consisting of primarily social media feeds (e.g., Facebook, Twitter, YouTube) promoting our science faculty and students, institutional recognitions and awards, conservation efforts, and the occasional community event or celebration.

Like many marine science institutions, our education team comprises individuals with expertise in STEM disciplines and experience in doing STEM, rather than the education field, resulting in variations in knowledge on research in learning and teaching across the team. It is up to the educational leadership, as well as the team, to identify and fill gaps in knowledge to strengthen team practice. For that purpose, we initiated efforts in October of 2016 to build a learning community using *Reflecting on Practice* (RoP) (Tran, Werner-Avidon, Newton, 2013). Lynn Tran and Catherine Halversen created RoP to address a gap in the informal STEM education field. There was a need for resources and mechanisms to support the professional growth of informal STEM educators, but not much was available specifically for our field (Bevan & Xanthoudaki, 2008; Tran, 2007). The goal of the program is to advance the informal STEM education field by cultivating communities of learners among its professionals by immersing them in ongoing routines and protocols that engage them in hands-on activities, research discussions, and reflective analysis of their own teaching. RoP is grounded in the research and science on how humans learn and effective teaching to support learning. Its modular learning structure is intentionally designed to enable flexible implementation *in* informal learning environments by leadership within the organization. Through this collective work, participants can grow a PLC and reach a shared understanding of what high-quality teaching and learning might look like, and how to achieve it, at their own organization.

In spring of 2017, we realized we needed to expand beyond our own four staff members to mediate the limitations of our small team: too much familiarity and deferential behavior and too few people and diverse ideas at the table. We already worked closely with educators in a nearby organization and knew they were also eager for their own professional growth. Our PLC grew by three new members.

FIRST STORM – HARVEY

In August 2017, the Texas Gulf Coast experienced its largest hurricane in over forty years. Hurricane Harvey made landfall as a category 4 storm, with our institution and its education centers taking a direct hit. The damage was widespread and devastating, leaving nearly every building and structure inaccessible or unavailable for use by our staff and our visitors. During the recovery from the hurricane, we invited another small team of educators to join the PLC. Thus, by the end of 2017, our PLC comprised 10 staff members from three organizations: our own, Oso Bay Wetland Preserve & Learning Center, and Coastal Bend Bays and Estuary Program-Nueces Delta Preserve. While we speak primarily about our own team's experience, (the four staff members from UTMSI/Reserve), we want to acknowledge the whole PLC's contribution to that experience.

After the dust (and water) settled, literally and figuratively, our team came to terms with the emotional and professional blow of losing the ability to teach as 'we have always done,' using the spaces and things that were core to the experiences we created. This realization left many of us struggling as practitioners. We identified the impact to our practice as loss of space, place-based assets, and complete ownership of the teaching/learning experience. Because we were unable to practice from our own facilities, we had to pivot to alternative modes of facilitation and program format. These changes included adapting to outreach and off-site collaborative programs that allowed us to continue to offer the in-person, place-based, and STEM experiences we are known for, but do so in different and new spaces. In addition to the operational nuts and bolts required by the transformation, we also acknowledged and cared for the emotional, mental, and physical trauma and disruption that comes with such a devastating loss to professional and personal circumstances.

SECOND STORM – COVID-19

Rebuilding our site and collections took time and resources, but it was happening. We were beginning to return to capacity when the COVID-19 pandemic made us close our doors in mid-March 2020 (Figure 1). Unlike the hurricane, disruption from the pandemic was global and prolonged. As with all other organizations, businesses, and industries across the county that year, our community became isolated at home, relying on virtual platforms to continue working and communicating, while concerns over livelihood and public health loomed over all of us emotionally and psychologically.
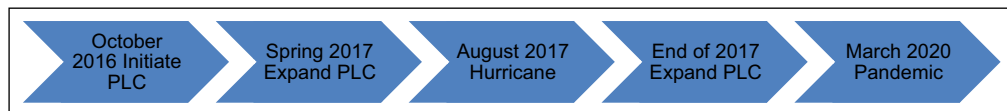

October 2016 Initiate PLC → Spring 2017 Expand PLC → August 2017 Hurricane → End of 2017 Expand PLC → March 2020 Pandemic

Figure 1 Event timeline.

QUALITIES FROM OUR PLC

The investment early on in creating a work culture that valued learning and community is what enabled us to be resilient and persist despite these devastating disruptions. Using the routines and protocols from RoP that nurtured trust among colleagues, we had processes for staying connected, problem solving, and learning from our reflections. These routines had become our reflexes. They provisioned our team with the expert skills and conceptual framework to re-examine our core values more easily and reflect on our teaching approaches to support learning as we continued to pivot during times of change, turmoil, and disaster. Specifically, the PLC positioned our team to tackle the issues and struggles we were facing in our professional practice, such as 'how do we shift to virtual instruction?', 'how do we support each other and maintain a sense of normalcy?', and 'what does another recovery look like?'

Despite the hardships of the hurricane and the pandemic, our team continued to show up to learn and contribute to our shared learning space, even when that space was Zoom and not our offices or classrooms. Staff continued to push into their practice, and each other, observing and reflecting on their teaching to make improvements and work through issues. Staff brought new literature and content to our learning spaces to challenge our own thinking and create new understanding. For example, we dug into how people learn in virtual environments, what technologies (e.g., Zoom, Padlet) afforded small group conversations or whole group sharing, and which elements of our current practice would not translate or transfer to virtual environments.

We considered how this would work for our target, our most common audiences– of teachers, families, and students in classrooms. We listened with care as we each processed through our frustrations, failures, and successes of recovery and transformation. Staff were unwilling to forgo the use of teaching best practices and intentional design to inform our program pivot process, even when it would have been easy (and justifiable) to do so, making programs fun and entertaining but not situated in learning outcomes. We did this even when it meant we produced less content or programming than we hoped and planned to and compared to what other peer organizations were producing.

Upon reflection, these are three critical qualities of our PLC that helped our team be more responsive and resilient to the disruption of the hurricane and later the pandemic.

ROUTINES & PROTOCOLS

Our education team met monthly, for approximately three to four hours and used the RoP curriculum to engage in hands-on activities, discussions on research, and reflective exercises. After the hurricane, this monthly meeting became the established and familiar routine that remained, even as most of our professional and personal lives were heavily disrupted. The consistent structure of the RoP sessions, led by our own staff, became familiar, which in turn, facilitated us going deeper into the content and reflections. There were certainly times when one or more of us felt like they didn't have the time or the mental energy to devote to these conversations. But we found that once we started, the collective energy of our community pulled us through, and the time spent on improving our practice was a welcome and energizing respite from dealing with the aftereffects of the storm. Moreover, time allocated to thinking about our programs, at a time when we were not able to conduct most of our usual programming, was an invaluable psychological lift for a group of people who, at the core of their being, are educators.

For example, the protocol and tools for watching videos of our teaching as a group (video reflection) guided us through making critical observations and providing productive feedback that focused on particular aspects of our teaching practice. The language of thinking about (reflecting) and providing thoughtful (critical) feedback became a tool by which members supported each other in improving their individual teaching practice and our team's collective understanding of what high-quality teaching looks and sounds like. These exercises transformed our reflective abilities, making us more skilled evaluators of our own programs and learning impacts. When our second disaster (the pandemic) caused a shutdown of our in-person programming, we were forced to teach and engage virtually with each other as a team. The familiar video reflection process helped us seamlessly transition to virtually critiquing our efforts at online programming. The structures and language that we were already using for our PLC enabled us to immediately start thinking about our new programming in a format that was new to all of us.

SHARED LANGUAGE & UNDERSTANDING

The ability to use shared language and understanding quickly and efficiently allowed us to focus our thinking and conversations on the *transformation* of our programs and not on the *translation* of what we were trying to say as we confronted the disruptions to our practice. In our PLC's early stages, everyone brought to the community their own unique experiences and expertise with teaching in informal environments. This diversity was extremely valuable and helpful, but because we were all working from an individual perspective and way of knowing (and speaking), our ability to collectively examine our teaching practices was messy, stressful, and frustrating. Misunderstandings opened the door for discomfort and a lack of trust or feeling of support. While we could all agree that student-centered learning and inquiry-based instruction were essential to our educational approach, we lacked a *collective* deep understanding of how people learn and how we, as a team, would define and support the learning taking place within our programs. The content and routines from RoP helped us develop more sophisticated ways of articulating our teaching practices: how we define and describe how people learn, how we design our learning experiences, and how our actions as teachers and educators impact the learning process and outcome for our learners. After both the hurricane and the pandemic, we had the ability to ask each other (and reasonably answer) these critical and essential questions. Our new and refined ways of engaging and speaking with each other alleviated the previously felt discomfort and lack of support, replacing it with care and compassion.

It was the pandemic that forced us to make a much bigger pivot in our programming than we had during the hurricane. Moving from in-person to virtual instruction was a massive undertaking. Teaching virtually was a new experience for many in our team, and generated both trepidation and a conviction to move forward. For this transformation we really had to trust in our shared understanding of how people learn, and rely on our PLC to provide the critical and reflective feedback required to make changes, assess their merits, and go back to the drawing board if our changes weren't working. We can't say that we created and supported amazing virtual learning experiences. In fact, our team would say with humility, 'we did okay; they weren't horrible.' What we can say with confidence is that we approached the creative process intentionally and strategically and based on our shared understanding of how people learn. We learned a lot and plan to leverage that learning as we continue to rebuild.

TRUST & RESILIENCE

An unexpected benefit of our PLC was the ability to use the strengths of our group as a trusted and safe space to have difficult conversations beyond our teaching practice to support and nurture each other during the uncertainty of the hurricane and pandemic. We built the PLC to support the difficult conversations of our practice, such as 'what isn't working and why?', 'how do we know if learning is taking place?' and 'which of our teaching practices support and encourage learning (or don't)?', but we didn't anticipate that the PLC structure and culture would also become invaluable for other conversations that built resilience and sustained us through these tough times.

We were exhausted by the time the pandemic arose as a major issue in Texas. We did not rally as quickly or as well (or with as much exuberance) as we did after the hurricane. The exhaustion and fear of the unknown made the process of pivoting our programs even more difficult. Add to the mix our concerns about job security and societal unrest following the murder of George Floyd. While we knew how to do the hard work of examining our teaching practice prior to these two events, we had not dealt with the added complexity of the vulnerabilities associated with social injustice, industry 'collapse', and recovery fatigue. It was the sense of belonging and togetherness, as well as a trusted space for sharing, that were crucial centerpieces to nurturing our exhausted team and to supporting the hard conversations that emerged from these events. Additionally, the familiar pattern of reflective dialogue and feedback within our PLC gave a framework to tackle these new conversations, such as how our institutions were communicating pandemic and equity-related statements and policies, how we were each handling our personal and professional isolation, and how we felt (and what we could do, if anything) as we watched peer institutions reduce staff, eliminate their education departments, or shutter their doors completely. Having these conversations, expressing our fears, hopes, and possible actions, gave us a much-needed way to process through and rebound from the turmoil of our circumstances.

BUILDING YOUR PLC

Here are three major insights from our experience that we feel may be helpful to educators and leaders across the informal and marine sciences education community as we all rebuild, rethink, and re-engage our teams and audiences.

1. **It's a marathon, not a sprint.** A PLC doesn't just come about because colleagues work together. Even within small, tight-knit groups who work together closely, it's not appropriate to assume there is a PLC. In our situation, our work was intentional, but it was focused on our educational products and audience, not professional learning for our staff. PLCs require commitment over the long term for colleagues to learn together about how they do their work. PLCs don't necessarily emerge from a series of mixed bag or one-off professional development opportunities throughout the year. They are shaped by its members and should not be dependent upon one or two individuals for its survival. Ideally, the routines, protocols, and culture of the PLC are sustained (become institutionalized) as its members evolve and come or go.

2. **Small teams can sustain** powerful PLCs. It's a fallacy that only larger, well-funded organizations can build and sustain a PLC. It is the dedicated time and effort and the sustained motivation and routines of the people within the community that lay the groundwork for PLC development. Understandably, with small numbers, there can be too much familiarity and like-mindedness within the group, resulting in less diversity

of thought and a lower willingness (and ability) to push each other and give critical feedback. Moreover, one absence in a team of four means a quarter of the group is missing. However, small teams tend to be cross-trained and more aware of how their actions impact their peers. With less hierarchy, changes can be tested and revised quickly. We overcame our small numbers by teaming up with other organizations in similar situations. While each team maintained their own autonomy over their educational work, we were able to benefit from the expansion of viewpoints, experiences, and knowledge.

3. **Existing programs can provide a framework** to initiate a PLC. There is no reason to reinvent the wheel by creating a new architecture from which to build your PLC when tools already exist. While our team lauds the RoP program (reflectingonpratice.org) as an excellent foundation for informal science education teams, we recognize there may be other programs with structure and process that can serve as the basis to build a PLC. A few of these features include (1) progressive routines that are adaptable for small and large teams, as well as varying time commitments, (2) content and activities that connect practitioner practice to research and literature, and (3) guidance or scaffolding that supports facilitation and integration into everyday practice.

FINAL THOUGHTS

Building PLCs is hard work. It can be expensive in time and effort. It requires long-term commitment. These are challenging barriers to push through in the best of times, let alone during times of disruption. The informal science education field is no stranger to the need for flexibility, industriousness, or creativity when times are tough or in flux, or even when they are not. Disruptions take many forms, from temporary closures to reorganization to natural disasters, each bringing their own distinct hardships and challenges to how we think about and support teaching and learning within our organizations, or our field. When things are scattered and teams are exhausted, what are the things that we can rely on to stay productive and moving forward? How do we champion the investment in and nurturing of PLCs to advance educator professionalism, practice, and resilience within our field? As many of us are in rebuild mode, there are novel and critical opportunities to reinvest in or create PLCs within our teams and institutions and to share this information with our field.

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COMPETING INTERESTS

The authors have no competing interests to declare.

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