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Redefining Professional Learning for Museum Education

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ABSTRACT

It is through the collective work of museum educators that an organization grows its social capital in its local community and beyond its physical footprint. Given the significant contributions of museum educators to an institution's outcomes, we argue for a shift in mindset on investing in their growth and development. We share our reasoning for this change through our experiences from the *Reflecting on Practice* program. Two leaders in our community offer their reflections on why they took this leap of faith and the outcomes 5–10 years since their first step.

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The need for a shift

The need for staff training and professional development is not a new phenomenon in almost any field, including museum education. If such opportunities are available, they typically include a common set of features. They are standalone experiences: “once you finish, you’re trained up.” They embody a deficit perspective of the participants: “if you know this information or skill, you will be better at what you do.” They are designed as one-way conveyance of information: “let me tell you what you need to know.” They are treated as a burdensome expense: “how much is this going to cost us, how many hours away from doing their work is this going to take.” Whether intentional or not, these features underlie the mindset towards professional development for museum educators, which in turn are infused in the way things are done. The irony is that the sentiments underlying these features contradict the level of excellence that institutions expect in the quality of their educators’ work supporting visitors’ experiences. Moreover, these features *do not* reflect what is known about how people learn¹ or how to transform practice.² Thus, it’s questionable whether spending time and resources on professional development by these current norms offer a sound return on investment.

So, why are these norms by which professional development are offered so pervasive? Museums *are* willing to invest in the material capital, such as exhibits and building, to enhance visitor experiences that are critical to organizational outcomes. Perhaps these norms have to do with the perception that visitors pay to come see the Picasso, check out the stench of the corpse flower when it’s in bloom, or interact with the tornado maker, *not* talk with the museum educators. Hence, when faced with making the “hard decision” of how to spend limited funds, it is an either-or proposition – either the exhibits or the educators. Museums *are* cultural institutions with education as a part of our missions. Perhaps these norms have to do with the perception that “learning” is what visitors do when they visit our places, but that professionals should already know how to do their

jobs to support learning. The reality is that museums are no longer mere repositories of “curious objects” for visitors to come see.³ Museums are places where rich conversations happen.⁴ Visitors have many different motivations for visiting,⁵ and museums support those motivations through both the design of the learning experiences and the associated conversations.

Museum educators work at the interface among the objects within an organization’s collections and the cultural, conservation, historical, and scientific knowledge embodied by those objects and the visiting public. Educators’ collective work broaden the scope of an organization’s reach: interactions with general visitors at the exhibits, classes and activities for schoolchildren on- and off-site, enrichments for youth and seniors, and workshops for classroom teachers (to name a few). It is through this collective work that the organization grows its social capital in its local community and beyond its physical footprint. This social capital garners tangible returns, such as continued visits, sponsorships, and donations, as well as intangible yield, such as reputation, respect, expertise, and leadership. Given the significant contributions of museum educators to an institution’s outcomes, is there another way to think about investing in their growth and development?

Over the last 10 years, our work in *Reflecting on Practice* has been exploring another way of thinking about and offering staff development – for investing in an organization’s human capital. In this article, we share our experience. First, we explain the mindset and design framework for *Reflecting on Practice*. Then, two leaders in our community offer their reflections on why they took this leap of faith and the outcomes 5–10 years since their first step. Finally, we consider our accomplishments and lessons learned to muse on the future directions and questions for the field to consider.

Mindset and design of the program

Reflecting on Practice (RoP) is a professional learning program for educators in informal STEM learning environments to learn together, over time, at their own pace, and in an ongoing manner. By professional learning we mean ongoing learning about one’s practice, which is fundamental for increasing expertise in any profession.⁶ RoP is designed for organizations to adopt and implement themselves, rather than having an outside expert come on-site or sending select individuals out to participate. The intention is for the community to learn about learning together, and in the process shape the language and meanings by which they do and talk about their work to support visitors’ experiences. Fundamental to the program is continuous inquiry into one’s practice through mechanisms of reflective practice. The approach taken in RoP requires commitment from both organizations and individuals; senior management offers the time, resources, and freedom needed for implementing the program, while the educators remain open-minded and willing to explore, scrutinize, and change. Cultivating leadership capacity is inherently built into the program, as leading the RoP program ought to be shared among a team of RoP Facilitators and passed on to emerging leaders within the organization.

Reflecting on Practice is a modular program. Each module focuses on topics relevant to educational practice in informal STEM learning environments; the first four modules explore: nature of learning and science; how people learn; learning conversations; objects and design. Each module consists of two interactive sessions and one to two

video reflection sessions. They lay the foundational knowledge on learning, teaching, and design and establish the routines and habits for reflective practice. Museum staff spend these hours together to discuss current research and put that research into action. In so doing, they build trusting relationships and familiar routines that are essential for the community to dig into sensitive topics that are currently in development, focusing on diversity, equity, and inclusion; emotions and motivation. All modules are documented in a written curriculum that guides the organization's team of *RoP* Facilitators to lead the program.

The interactive sessions are two and a half hours long. Each module includes one interactive session for core content and another for advanced study, led by the organization's own *RoP* Facilitators. The sessions are designed to engage participants in activities and discussions on learning and teaching – both drawing on their personal and professional experiences and integrating research from the fields such as neuroscience, psychology, education, and sociology. Participants are encouraged to express their thinking candidly and safely, review their habits and assumptions, and determine how to apply research into their practice.

Video Reflection sessions are two hours long. Each module from Module 2 onwards includes one video reflection session for the whole participant community and at least one other in which participants meet in small colleague groups. The protocol is based on a concept used in architectural design, the “charette,” an assigned, concentrated time for collaborative and creative solutions to a design problem. In the case of our Video Reflections, an educator-presenter frames the problem and presents the case with materials for the group to review (e.g. video, written curriculum). The community reviews the materials and provides substantive feedback to assist in solving the problem. The educator-presenter remains silent during the feedback discussion and listens and takes notes. This notion of the educator setting the problem to be solved is a feature that distinguishes a professional from a technician,⁷ and is critical for reflective practice.⁸ All members of the community have multiple opportunities throughout the program to be the educator-presenter. By using and viewing video clips of each other's real-world interactions to reflect on their practice and draw on facilitated observations and feedback from colleagues, participants experience profound change.

Together, these sessions are infused with four elements for examining and changing practice:

- (1) *Model and build practice.* Facilitators lead interactive sessions in which they model evidence-based practice in a hands-on activity or discussion about research. Participants engage as active learners, as they discuss pedagogy and reflect on their own practice.
- (2) *Relate research to practice.* To learn to implement research into their own teaching practice, as modeled by program facilitators, participants read and discuss key ideas from the literature. Literature reviews across multiple disciplines provide participants with the opportunity to talk with their colleagues about – and make sense of – ideas from research.
- (3) *Talk about and experiment with practice.* Participants are given time to think about pedagogical strategies they currently use and to generate approaches they would like to try. They are encouraged to experiment with their teaching practice, and to share their experiences with one another.

- (4) *Observe and reflect on practice.* Participants engage in activities designed for reflection both individually, by video recording their teaching, and as a community, making their practice public by reviewing those videos with colleagues in a supportive learning community. Facilitators encourage participants to examine their teaching preferences, as well as to consider the approach and philosophy of their team, department, and institution.

RoP provides the content and routines for a team (and institution) to launch a program of study that shifts their mindset towards professional learning. In turn, the community is charged with devising the plan and making the commitment to keeping the learning ongoing after they complete the written curriculum.

Two stories to imagine the possibilities

In this section, two *RoP* Leaders share their experiences with implementing the first four modules of *RoP*. Because they started *RoP* at different times, their reflections in 2019 provide a glimpse into the outcomes of investing in professional learning from two time points. Preeti Gupta at the American Museum of Natural History shares what prompted the need for the program in 2015, and then offers insights on the implementation, outcomes, and challenges for her team's effort. The Aquarium of the Pacific initially implemented *RoP* in 2009 as an original field test site for *RoP*. David Bader's reflection picks up where Preeti leaves off to share how his team integrated *RoP* into the standard operating practices at the aquarium.

Story one: starting the *RoP* journey

The American Museum of Natural History (AMNH) has a long and rich history of serving children, youth, and teachers both locally and nationally through exhibitions and programming with the goals to (1) inspire and excite learners about natural sciences, (2) deepen engagement with the sciences to promote STEM careers, (3) and ignite and foster lifelong learning of topics that are being researched by museum scientists. As in most museums, AMNH educators and managers are dedicated, passionate, and qualified people who create and deliver engaging programming to meet the goals.

In 2015, the Youth Initiatives department within AMNH's Education Department made a commitment to bring *RoP* into our department. Youth Initiatives comprised 18 full-time and 22 part-time staff who were responsible for developing and implementing courses and camps for children and youth during non-school hours. There were specific needs that prompted museum leadership to take this step.

Framing the problem

The team was 40 people strong, with experience ranging from one year to more than 10 years in the field. Staff came with a diversity of talents and experiences, as well as held a range of stances on what learning should look like in a classroom or on the exhibit floor. No one questioned that hands-on, interactive experiences were the best way to learn. However, we lacked a shared understanding of how people learn, and there was a

disconnect between beliefs on learning and how to support it. For example, PowerPoint slides and lectures were used more often than needed. There weren't enough mechanisms to engage learners in small group talk and access prior knowledge. Audiences were "talked to," as opposed to "talked with." Visitor experiences led by museum youth were didactic.

Additionally, we didn't have routines for communicating with each other about teaching and learning. This missing mechanism manifested in levels of distrust and nervousness among staff. For instance, if the program director came to observe a class, educators felt that they must have done something wrong. When supervisors wanted to provide feedback about a way a concept was presented, it became a battle of personal preference and opinion. When educators wanted to experiment with teaching strategies, supervisors were resistant because of fear of change.

Without a means and habit of talking about our practice, there was also no genuine way to shine light on the many examples of exemplary teaching happening in the department. As a result, we lost opportunities to celebrate the successful ways we engaged learners and to learn about what made them successful.

How RoP was implemented

Following commitment to adopt *RoP* came the challenge of scheduling our department of 40 that included the director of the department, managers, coordinators, and educators. Our solution was to divide the team into three groups and leading each *RoP* session three times every two weeks: Monday morning (Group A), Monday afternoon (Group B) and Tuesday afternoon (Group C). Meeting times were two and a half hours as suggested by the curriculum.

Each group was led by a pair of co-facilitators. The Director of Youth Initiatives co-facilitated all three groups, and three staff each co-facilitated one group in partnership with the director. There were several reasons for this arrangement. First, it was important for the entire staff to know and experience that the director of the department was committed and leading the facilitation of *RoP*. Second, it was critical that there be a group of people within the department who became savvy at facilitating *RoP*. Third, since the director felt somewhat removed from the everyday nuances of the staff needs, it was necessary to select co-facilitators who represented different aspects of leadership and work, such as hiring staff and developing materials. The facilitation team met regularly to plan and debrief each session so that we could monitor progress and make appropriate adjustments in response to our community. We were able to rely on the department's administrative staff for logistical support, such as catering, gathering materials, coordinating video collection.

Impacts

This dedicated implementation of *RoP* over 18 months directly addressed the needs of the department.

Shared language and knowledge. The staff formed into a community of practice, with shared vocabulary and understandings of how people learn. When educators crafted activities, they thought about tenets of the social nature of learning⁹ and devised appropriate ways to structure conversations among learners. For example, the curriculum was

embedded with Think-Pair-Shares allowing learners to first retrieve relevant memories as they *think* about the prompt, then *pair* up with someone to test out their uncertain ideas and connections and then *share* with the whole community to co-construct knowledge. Additionally, where good practices were already in place, staff were now able to back those up with research on how the brain makes sense of new concepts to justify why those practices should remain.

Routines and norms for reflection. Staff became receptive to giving and offering feedback for changing practice, and refined a process for doing so. The director of the department could now have easy going conversations about refining curricular items. Classroom observations focused on problem-solving to enhance learning. For example, in one case, it was observed that elementary school girls sat near the back when the kids were asked to sit on a carpet for a 15-minute scientist show-and-tell visit during a camp. As the scientist interacted, mostly boys raised their hands. The staff picked this topic on gender dynamics for closer scrutiny and began looking for patterns in observable behavior. From these observations, a subset of staff explored strategies to ensure gender equity in their practice. Experimentation within activity implementation and a commitment on the part of the educators who taught the courses to become more aware of their practice resulted from this investigation.

Developing trust. *Reflecting on Practice* led staff to develop an appreciation for each other's talents and a safe space to discuss ideas about teaching and learning, particularly when they didn't align. The structure of the program was such that it fostered conversations that encouraged staff to examine their practices and share strategies. This approach led staff to learn about each other's academic and work histories. While at first everyone was apprehensive about the video reflection aspect of the program, they quickly realized that the purpose was not about showcasing the good or bad examples of teaching. Rather, the goal was to use teaching vignettes for rich conversations about the possibilities of what the educator could do and how that might impact the learning in that class or at the exhibit. Staff began to enjoy sharing their videos and watching their colleagues because it became a way to witness different strategies.

Learning about learning. The museum always has had a culture of professional learning for staff, but much of it focused on science content. Participation in *RoP* expanded the professional learning to include pedagogy and reflective practice. Another impact of *RoP* implementation in Youth Initiatives is that staff are ready and welcoming of professional learning topics that are more sensitive, such as diversity and inclusion. AMNH has committed to staff training in this area, but without *RoP*, this topic would have seemed like a heavy lift. Now, the staff has trust and a mechanism for talking about teaching and learning practices making it easier to introduce this topic of diversity and inclusion.

Challenges

In our first journey through *RoP*, there were several challenges that we faced. Solving them offered different learning and growing opportunities for us as a community.

Lack of buy-in. While most people recognized the purpose and intent of *RoP* from the beginning, some resisted. There were a few reasons for the pushback. First, a few people felt they had advanced degrees in museum education and thus had nothing new to learn. The director framed *RoP* not as a professional development program that was about

“learning something new,” but as a professional learning program in which colleagues share what they know with each other, learn from each other, and together refine their practices. Second, a few people felt that it was not relevant to them because they worked behind the scenes, and not in front of audiences. The director emphasized that while this may be true, the community-building activity for Youth Initiatives was directly linked to the community building that was expected in *RoP*. Being able to participate in *RoP* was going to expose them to the theoretical understandings of how people learn, how we engage audiences, and how the colleagues who are in front of audiences are thinking and planning for refinement of practice. These few who felt that they were behind the scenes were asked to play roles related to strengthening community, fostering conversation and refining our departmental approach to teaching and learning. Finally, a select few felt that they were not gaining anything from the discussions and readings in *RoP*. There wasn’t a straightforward way to address this challenge. However, for those that felt this way, the video reflection work was rewarding and satisfying.

Peers as leaders. The intentional choice of including some mid-level leaders as co-facilitators was useful for sustainability planning. However, it also served as a challenge. Several staff who participated in *RoP* were unable to see their colleagues as “leaders,” as people who could assign homework, readings or lead discussions. There was resentment that the co-facilitators got to work closely with the director for planning *RoP*, while others were left out of this leadership opportunity. This issue was addressed by coaching the co-facilitators to show humility when leading discussions, and sharing with the staff that we are “all-in-this-together,” but someone must lead the discussion simply to avoid chaos and manage time. As staff became more comfortable with the routines of *RoP*, this challenge dissipated.

Scheduling. It was challenging to mandate that 40 people select one of the groups and stick to the schedule. There were lots of times that people switched groups, called in sick, and missed *RoP* for various reasons. The director kept a close eye on each of these emerging situations and worked on a case-by-case basis to address the scheduling issues. By the end of *RoP* implementation, only three people could not complete *RoP* because of scheduling issues.

Where are we now?

After we completed all the modules with the whole department, the question arose of how to sustain *RoP*. There were new staff joining the department who needed to go through the whole series. How could we keep the rich conversations and opportunities to reflect on practice going without the formal structures of *RoP* modules?

Within the Youth Initiatives department, *RoP* continues in the following ways. When there is a critical mass of new staff, they participate in a whole round of *RoP* starting from Module 1. For those who have completed the first four modules of *RoP*, time is carved out of select staff meetings to revisit the research discussions and apply them to practice. Now that those readings are familiar, staff can come back to them to go deeper, make new and different connections, and push on innovative ways for applying research as their practice evolves. Finally, the subset of educators who write curriculum and teach the camps/courses continue to do video reflections. By engaging in these various activities, we can ensure *RoP* remains an active part of the department’s conversations and culture.

As *RoP* deepens within Youth Initiatives, it is permeating into the professional development culture of other groups in the Education Department at AMNH. These staff are joining our sessions, participating in *RoP* Coaching Workshops¹⁰ to learn it for themselves, and co-facilitating the sessions with us. As a result, *RoP* is making its way throughout the educational work of the institution.

Story two: integrating RoP into the day-to-day

Involvement with *RoP* at the Aquarium of the Pacific (AOP) began in 2009 as a field-test site for the first four modules, so our initial adoption was supported by funds from the National Science Foundation (NSF)¹¹ to develop the program. While we implemented *RoP*, the practices were not yet part of our everyday work. Following that funded implementation, the challenge was how to transition *RoP* into the culture of the organization's education department and leverage existing institutional funds to support our investments in professional learning argued for in *RoP*. In this next leg of our journey, we found that managers benefited tremendously from talking to each other about our practice managing staff.

Framing the problem

It became clear to us that ongoing professional learning required a continued investment in time, budget, and institutional buy-in to be beneficial. Before *RoP* our typical trainings were cheap in terms of time and staffing costs because the thinking was once staff completed the course, they were done. We learned from our experience with *RoP* that we were wasting money through this model because, on their own, the trainings were not creating any change in behavior. We realized that the desired outcomes of these opportunities were ephemeral if not paired with ongoing support, which we were not providing. Unfortunately, even as we realized this discrepancy, the potential costs of meaningful professional growth through ongoing learning seemed financially out of reach, particularly with the economic turmoil starting in 2009. Museums and aquariums across the nation were focused on austerity measures, which didn't include learning opportunities for staff.

Prior to *RoP*, goals for frontline educators usually focused on specific deliverables treated as simple tasks that could be accomplished easily and checked as complete/incomplete, such as learn to teach a class or create a new program. Managers may have made "SMART" (Simple Manageable Achievable Relevant Time-Bound)¹² goals for their staff to add measures or dates to specific goals, but these were still tasks to be completed. These goals rarely helped the educators understand how they were building their understanding or competence of practice, or know their degree of progression. Furthermore, supervisors lacked documentation or meaningful language to talk with the staff about their practice. Staff members were certainly growing in their professional practice, but supervisors were passive observers, rather than the thoughtful and purposeful enablers they wanted to be.

With these two key reflections framing our problem, we could figure out solutions to extend and reinforce what we learned from *RoP*. We needed to find a way to establish an ongoing professional learning framework that incorporated practices we knew were

effective from *RoP*. We needed routines and tools for supervisors to support staff development. Moreover, both needs had to fit into reasonable and already budgeted time allotment.

Management as teaching

Our critical first step to finding solutions required shifting our thinking. Embracing the professional learning mindset from *Reflecting on Practice* revealed to us that effective teaching practices were an essential part of management practices, especially in an educational setting like the AOP. Understanding how people learn should be applied to an educator's implementation of a K-2 program about tide pool animals in a classroom, *and* to a supervisor's efforts to support that same educator working on providing those experiences. Coaching, training, or providing feedback to staff on how to do their jobs in the best way possible was a goal of personnel management, so it was possible that ideas in teaching and learning could be applied to help achieve this goal.

This fundamental change in our thinking – management as teaching – needed to be followed up in management practices. Just as frontline staff were asked to use *RoP* principles to be reflective and to look for evidence to support claims of good teaching “about fish,” supervisors were asked to do the same with regards to their staff's development. We looked at how staff time was spent and noticed that supervisors were already tasked by senior management and Human Resources to meet regularly with those they supervise to cultivate relationships and set expectations. By bringing *RoP* into our approach for personnel management, we could make use of allocated meeting times, aim to integrate reflection into the dialogue between supervisor and direct report, provide individualized professional learning, and achieve the ongoing professional learning piece that was previously missing from the equation.

We also took notice of our changing culture. We wanted all staff members to be intentional in their work. We were aware that both staff and supervisors needed to develop skills for their respective practice. From *RoP*, it became apparent that a culture of sharing practice was fundamental to developing these skills. The video reflection routines in *RoP* offered a safe and structured way to make public what had always been treated as private: the interactions between educator and learners. As a result, peers were talking with each other about student behaviors, goals, challenges, and more. They were engaging in professionally relevant reflections, and these changes transferred into conversations between supervisors and direct reports.

For instance, we saw a distinct difference in what happened when an educator was asked “how was your class?” The conversation went from merely “it was good” to specific interactions that the educator thought was particularly effective or ineffective and why. These check-ins between peers were “hallway conversations” that happened in those moments before and after a program that the educators were carrying over from *RoP* sessions. While supervisors did not always witness these exchanges, they were aware the conversations were happening. So, these conversations could be easily brought into the regular meetings with direct reports. The concept “making practice public” was changing how we talked with each other and what we talked about. Those once private teaching actions were moving into productive, informal conversations between staff. These conversations, in turn, became valuable, concrete assessments of

progress towards professional growth that staff and supervisors could reference, monitor, and plan for in their regular meetings.

Making management practice public

To engage in professional learning in *RoP* meant we had to put ourselves in the role of the learner. Doing so shifted our perspective and teaching practices. In our conversations, we were pushed to refine what success and growth in educational practice should look like. We were given tools to seek evidence of that. These tools were sometimes simple, but staff were now working to use them purposefully in their practice. We began to ask the question “how do we know?” in response to educational practice.

In problem-solving how to institutionalize *RoP*, we shifted our mindset on management to view it as teaching. So, through *RoP*, we changed our management practices and, in this way, fully integrated *RoP* into how we think about and do our work. We paid less attention to simple, easily completed, time-bound tasks, like learning the script for a show. Instead, we focused on the capacity of educators to understand their practice in a meaningful way. All supervisors actively participated in *RoP* sessions, taking the opportunity to deepen their own practice as educators. As supervisors took ownership of the ideas and routines for thinking and talking about learning to enhance visitor experiences, they transferred that knowledge into how they managed their staff. Collectively, we started establishing common goals for staff, standards for supervising, and measurements of staff success. At this point, supervisors needed a space to share their management practice, just as educators had “hallway conversations” to share their teaching practice. A monthly “super meeting” was established for all supervisors to come together to share their practice of working with staff, like goal setting, conducting performance reviews, supporting staff growth. These adaptations to management practice were in direct contrast to the previous strategies where each supervisor was working independently with very little collaboration.

Supervisors now have tools and mechanisms to play a more active role in staff development that is in alignment with our teaching practice. Because of *RoP*, supervisors at the AOP support the professional growth of their direct reports in ways that reflect how people learn and change. Importantly, in this *RoP*-driven management system, staff are not assessed based on a checklist of accomplishments, but on their willingness to participate in reflections and professional learning. A key tenet of *RoP* is to maintain safety to explore ideas and practices without fear of reprisal or failure. Instead, failures are opportunities to learn and grow.

Two ideals of *RoP*

These two stories share lived experiences with *RoP* at two institutions, as told by one of their champions. They offered insights on the initial implementation of *RoP*, and extended efforts to take ownership in the ideas and routines introduced by the program. Indeed, the work is not easy or quick. Nothing that is worthwhile ever is.

At the heart of their stories are two fundamental ideals of *RoP* that we use to advance this field. First, *RoP* argues for the *mindset of the professional as a learner*. Learning is life-long and life-wide, we say this to our visitors. This position is a foundational argument for

the significance of our field, yet we don't embody it for ourselves, for our own practice.¹³ Preeti's story clarified the need to think beyond learning from one's advanced degree or disciplinary content, but calls attention to learning together, from one another about how we enact those ideas learned in school. Professional learning includes learning to solve problems about practice together. Dave's story revealed a clever way to incorporate this ideal into daily operations: re-envisioning the supervisor/supervised relationship into teacher/learner. Second, *conversations among colleagues about their work must go beyond daily operations*. RoP makes people make time for the conversations, gives communities of professionals things of substance to talk about, and introduces routines to push those conversations deeper. Over time, RoP routines become habit and are woven into the culture. Again, expressing their thoughts on STEM concepts is something we recognize and value for our visitors, but don't necessarily make time for ourselves. It is through these conversations about what we think that we advance our own thinking about what we do.

The places that thrive with RoP figure out these ideals and exploit them to their advantage, eventually taking ownership over these fundamentals. It is likely that the second ideal can't get embraced without the first, and the first cannot happen without the second. We do know that RoP sets in motion something potentially unstoppable within an institution and the professionals.

Notes

1. National Academies of Sciences, Engineering and Medicine, *How People Learn II*.
2. Zeichner and Liston, *Reflective Teaching*.
3. Roberts, *From Knowledge to Narrative* and Hein, *Learning in the Museum*.
4. Leinhardt et al., *Learning Conversations in Museums*.
5. Falk et al., "The Effect of Visitors' Agendas on Museum Learning" and Falk, *Identity and the Museum Visitor Experience*.
6. Webster-Wright, "Reframing Professional Development."
7. Schön, *The Reflective Practitioner*.
8. Dewey, *How We Think* and Tran, *The How and Why*.
9. National Academies of Sciences, Engineering and Medicine, *How People Learn II*.
10. RoP Coaching Workshop are professional learning experiences that teach workshop participants how to lead the Reflecting on Practice program at their own institutions. For more information: <http://reflectingonpractice.org/events/>
11. Funding for the national field test was supported by grants from the National Science Foundation (ISE #0917614) and Institute for Museum and Library (21MP). AOP received funding from NSF.
12. Doran, "There's a SMART Way."
13. National Research Council, *Learning Science in Informal Environments*.

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David Bader is Director of Education at the Aquarium of the Pacific. He has created a suite of capacity building opportunities for Aquarium staff, university and agency scientists, and informal educators across Los Angeles area. He is directly responsible for departmental long-term planning, staffing, exhibit development, interpretation training, budgets, and grant development for the Department's 12 full time staff, 41 part time staff, and 400+ volunteers.

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