Best Practices in STEM Professional Development: Self-Assessment and Resource Links

Providers of quality PD are a vital component to any ecosystem of STEM learning. Taking the time to objectively self-assess around best practices in the field can seem like a luxury. It is, however, key to growth and can be especially useful when links to helpful resources are paired with those best practices. In this way a provider can reflect in private and develop strategies in areas it may want to strengthen, and then take action using the supports it needs to make that improvement.

The vast majority of the self-assessment questions below are exclusively for your internal use. We only ask you to answer three baseline data questions first, so that we better know the landscape of STEM professional development in DC. Please use as many of the following questions as are useful for your reflection and planning.

Lastly, each of these best-practice indicators in most useful when accompanied with examples of what it can look like. As we continue to develop this tool, please contact us with any informational links or strategies you think should be attached to illustrate any specific indicator. This will both build a common resource and a community of practice.

Baseline data:
- How long have you been providing STEM PD?
- What type of training in STEM content or delivery have you received?
- Do you partner with other community programs?

Developmentally Appropriate
1. Do you align your PD with the level of practitioners’ backgrounds and experience in STEM?
2. Do you align your PD with the mission and goals of the organization or school being trained?
3. Do you tailor your programming/curricula content and instructional approaches to best meet the needs and learning styles of participants?
4. Do you ask questions of your customers to determine the interests and experiences of the young people they teach?
5. Do you connect current participants with others who have taken your trainings who may help them with advice around implementation?
6. Does your PD include a pre-assessment to measure baseline knowledge?
7. Does your PD include a post-assessment to measure the impact of the training?
8. Do you strategically plan which components of your programming or curricula are most important to provide direct training on when you have limited time to disseminate the training?
9. Do you communicate needed background knowledge or experience to prospective participants?
10. Do you provide information about who the training is best suited for so participants can self-select in or out of the PD?
Continuous and Ongoing Experience

1. Do you connect participants to materials, equipment and supplies they will need to implement your programming or curricula?
2. Do you provide ongoing support and resources for participants after a training?
3. Do you provide ongoing communication and feedback loops with participants to support their implementation after the initial PD?
4. If applicable, do you give participants assignments between PD sessions?
**Differentiated Experiences**

1. Do you offer guidance on using previewing and reflection to maximize meaning?
2. Do you survey participant content-specific interests in STEM and incorporate them in your PD?
3. Does your PD address expectations and objectives at the start of the training?
4. Does your PD offer opportunities for a variety of instructional approaches within it to maximize engagement?
5. Do you provide check-ins or formative assessments throughout the PD to ensure participant understanding?
6. Do you frame your PD in the construct of a specific instructional model (i.e. “5E”)?
7. Do you model scaffolding as a tool for educators to use?
8. Do you give guidance on how best to tailor new learning to the realities of participants' work environments?
9. Do you give strategies to participants for disseminating their training to their colleagues?
10. Do you leverage knowledge and experiences that practitioners already have when they come to training?
11. Do you make space for practitioner questions and implementation concerns during training?
Sustainability

1. Do you use up-to-date research, content and best-practices to inform your PD?
2. Does your PD leverage the use of technology?
3. Do you work with support and administrative staff prior to training to achieve buy-in?
4. Does your PD identify strategies and habits-of-mind that will serve young people in other pursuits, related and unrelated to STEM?
5. Is your PD transparent about the breakdown of skills the curriculum nurtures and develops?
6. Does your PD communicate further opportunities to explore the topic of your training?
7. Does your PD provide information about opportunities for youth contribution in STEM fields?
8. Does your PD provide information on how to engage parents or families?
**Content Knowledge Aligned with Learning Standards**

1. Does your PD explicitly support NGSS standards?
   a. If so, does the PD explicitly utilize three-dimensional teaching and learning?
   b. If not, does your PD directly address the use of inquiry?
2. Does your PD explicitly support other learning standards or codified skill sets (i.e. CCSS)?
3. Do you help practitioners engage young people in talking about the skills they are learning?
4. If your PD is for informal educators: do you help practitioners to help young people make connections to what they are learning in the school day?
5. Do you provide tools to assist in differentiated implementation with youth?
6. Do you make cross-curricular connections in your PD?
**Evaluation and Accountability**

1. Do you collect data that attests to the effectiveness of your training and resources?
   a. If so, is that data easily accessible by participants and stakeholders?
   b. If so, do you use the data you collect for the improvement of your PD?
2. Do you provide contact information for previous participants to prospective participants?
3. Do you provide specific examples of how participants can measure the success of implementation post-PD training?
4. Do you provide tools to enable practitioners to assess their growth and provide you with feedback after program implementation?
5. Do you provide tools and strategies for young people to assess their own growth and give feedback after program implementation?
6. Have you engaged an outside evaluator to assess your PD?
**Authentic Learning Experiences**

1. Do you engage participants in hands-on learning experiences?
2. Do you provide tools or resources for participants to bring hands-on learning experiences to their learners?
3. Do you model learning from both successes and failures during your PD?
4. Do you illustrate how your programming is relevant to real-world contexts?
5. Do you provide information about how your PD can inform a STEM careers and pathways?
6. Does your PD enable participants to connect learning experiences to the day-to-day lives of their learners?
7. Do you provide suggestions for field trips related to your PD?
8. Do you help practitioners connect your PD to service-learning projects?
9. Do you provide suggestions for further experiences, resources and curricula for educators or young people who respond well to the programming?
10. Do you include opportunities to recognize participant success and progress during training?