**Differentiating STEM education, outreach, public information, workforce development and professional development**

This table is intended to help organizations identify different types of activities, outcomes, and personnel qualifications in a set of fields often lumped together. The table focuses on things that help differentiate these overlapping areas. In most cases, professionals do some combination of the work areas below; however, **it is extremely unlikely that a person exists with qualifications in all of these areas.** We hope this table helps organizations sort through what they want to accomplish, and identify what/who they need in order to accomplish it. A strong background in science or engineering, as well as professional and organizational skills, is assumed, so are not included below.

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|  | **Examples of major outcomes and metrics** | **Example Activities** | **Examples of qualifications required by professionals leading activities** |
| **Communications and Public Information** | Increased awareness of targeted community in an organization’s activities  Increased community support for an organization’s mission | Web and social media  Media publications  Community relations  Presentations to community, government agencies, and  Videos, visualizations, apps, games | * Ability to communicate about science and engineering to a broad range of audiences, in writing, orally, and visually * Ability work successfully with media through press releases and * Experience creating communication plans and materials with a coherent message and sensitivity for the cultural, political, and social issues related to an organization’s science or technology * Ability develop websites, apps, videos, graphics, visualizations, and adapt to a rapidly changing landscape with emerging technology |
| **Outreach** | Increased participation of an under-served audience in an activity or organization  Increased awareness of targeted community of organization’s activities  Increased motivation, interest, or commitment to STEM | Talks, tours, and demonstrations  Web and social media  Booths at conferences  Exhibits  Workshops aimed at motivating, stimulating interest, inspiring | * Ability to communicate about science and engineering to a broad range of audience, in writing, orally, and through the Internet and social media * Experience developing, implementing and evaluating activities intended to motivate, inspire, and stimulate participants take an action * Ability to apply what is known from research on informal education to design activities and exhibits * Ability to form successful partnerships with science centers, schools, and community |
| **Education** | Increased understanding of scientific concepts  Increased proficiency with a STEM skills  Persistence in STEM  Completion rates  Increases in affective outcomes in learners (e.g. beliefs, attitudes) | Formal classroom education  Curriculum development  Bridge programs  Supplemental or co-curricular instruction  Workshops and programs  with outcomes measured in relation to learning | * Ability to apply pedagogy, the learning sciences, assessment, and equitable and inclusive teaching practices to designing, implementing, and evaluating curriculum and learning environments. * Ability to articulate and assess learning outcomes, in alignment with appropriate standards * Ability to design and evaluate activities that support persistence, aligned with research on persistence * *For formal classroom education:* Experience working effectively with classroom and schools, teachers, administration, and school communities * *For program education (outside formal classroom):* Experience designing, implementing, and evaluating program, including recruitment, selection, residential support, and managing events |
| **Workforce development** | Increased hires into targeted jobs  Increased hires of particular demographic groups  Improved workplace skills  Retention and advancement in new job  Implementation of effective mentoring strategies | Internships  Short courses  Workshops  Capstone projects in degree programs  Workplace activities that affect practices and norms within STEM culture | * Ability to apply pedagogy, the learning sciences, and equitable and inclusive teaching practices to develop training for future employees that build workplace skills identified by relevant employers * Experience developing, implementing, and evaluating work experience programs (internships, work coops, etc.) * Ability to design activities that will prepare future employees from diverse backgrounds to be successful gaining employment, and being successful within the norms and culture of the work environment * Experience developing partnerships with employers * Ability to assess workplace climate, and implement activities to improve it |
| **Professional development** | Ability to apply skills learned to practice (e.g. teaching, professional, etc.)  Participation in a professional learning community  Advancement in career  Effecting change within organization | Workshops  Practica  Short courses  Professional learning communities  Mentoring programs | * An ability to develop training programs aligned with what is known from research about effective professional development strategies * Experience developing, implementing and evaluating professional development programs * An ability apply effective and inclusive pedagogical principles to develop training activities that address potential barriers within the culture and norms of professional environment of targeted participants * Experience designing, implementing, and evaluating program, including recruitment, selection, residential support, and managing events |