**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 activitiesIncreased community support for an organization’s mission | Web and social mediaMedia publicationsCommunity relationsPresentations to community, government agencies, andVideos, 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
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| **Outreach** | Increased participation of an under-served audience in an activity or organizationIncreased awareness of targeted community of organization’s activitiesIncreased motivation, interest, or commitment to STEM | Talks, tours, and demonstrationsWeb and social mediaBooths at conferencesExhibitsWorkshops 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
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| **Education** | Increased understanding of scientific conceptsIncreased proficiency with a STEM skillsPersistence in STEMCompletion ratesIncreases in affective outcomes in learners (e.g. beliefs, attitudes) | Formal classroom educationCurriculum developmentBridge programsSupplemental or co-curricular instructionWorkshops and programswith 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
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| **Workforce development** | Increased hires into targeted jobsIncreased hires of particular demographic groupsImproved workplace skillsRetention and advancement in new jobImplementation of effective mentoring strategies | InternshipsShort coursesWorkshopsCapstone projects in degree programsWorkplace 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
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| **Professional development** | Ability to apply skills learned to practice (e.g. teaching, professional, etc.)Participation in a professional learning communityAdvancement in careerEffecting change within organization | WorkshopsPracticaShort coursesProfessional learning communitiesMentoring 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
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