

Notes from “Making Leaders: Leadership Characteristics Of Makers And Engineers In The Maker Community”

Makerspaces typically include “three interconnected elements:

1. A physical space where people work on and complete Making-related projects and activities;
2. An open community space where exploration, creativity, and collaboration is emphasized;
3. A multidisciplinary learning experience that seeks to create organic learning experiences for its participants” (American Society for Engineering Education, 2016). Specifically, project-based learning, experimental activities, including libraries, museums, independent nonprofit and for-profit organizations, K-12 schools, and universities (Halverson & Sheridan, 2014) have been identified as makerspaces available to students at every level.

how the members interact with one another, how do members interact with their environment, and what constructs, such as honesty, integrity or profitability, members share (Schein, 1992). These values or characteristics within the organization of Makers to develop and create innovative things are a central focus. The third level of organizational culture, and the deepest, consists of the underlying assumptions. Identification and articulation of these assumptions provides a basis for describing the values of an organization (Frontiera, 2010). By studying where Makers lie on a research spectrum, the ability of the Maker community to work and operate analogous to the operations of an organization’s leaders, visions, and values will be revealed. Makers range in expertise from novice to experts, each sharing an enthusiasm for building, creation and invention. These varying levels of experience and interest allow for the ability for these groups of individuals to interact within a larger organizational culture context. The values and norms inherent in a culture assist in shaping individual behavior, and resulting culture may increase individual commitment (Frontiera, 2010).

Table 2. Sample artifact elicitation interview questions

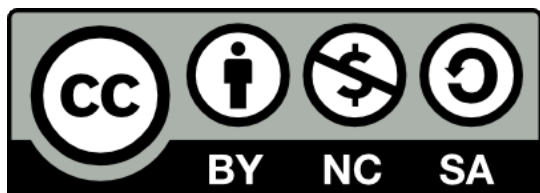
Can you tell me a little bit about what you brought to Maker Faire? Knowledge, Skills
What (knowledge and skills) did you have to learn to make this invention? Knowledge, Skills
What is your process for designing your invention?
Who do you do your Making with? Attitudes, Skills, Knowledge
How did you come up with the idea for this invention? Attitudes
What is the next thing you’re going to make, and why? Lifelong Learning

In their Making, this person:

- ___ 1. Listens to the problems of team members/subordinates. (Mentor)
- ___ 2. Reviews and/or reflects upon project achievements. (Monitor)
- ___ 3. Influences decisions made at higher levels. (Broker)
- ___ 4. Does problem solving in creative, clever ways. (Innovator)
- ___ 5. Clearly defines areas of responsibility for team members/subordinates. (Director)

- ___ 6. Displays a wholehearted commitment to the job/project. (Producer)
- ___ 7. Facilitates consensus building in work-group sessions. (Facilitator)
- ___ 8. Protects continuity in day-to-day operations. (Coordinator)
- ___ 9. Compares records, reports, and so on to detect any discrepancies in them. (Monitor)
- ___ 10. Shows empathy and concern in dealing with others. (Mentor)
- ___ 11. Sets clear objectives for the project and/or team/work unit. (Director)
- ___ 12. Searches for innovations and potential improvements. (Innovator)
- ___ 13. Works on maintaining a network of influential contacts. (Broker)
- ___ 14. Insists on minimum disruption to the work flow. (Coordinator)
- ___ 15. Reflects high motivation for the role. (Producer)
- ___ 16. Encourages participative decision making in work-group sessions. (Facilitator)

- Developing creativity skills (81 percent)
- Developing critical thinking and problem solving skills (80 percent)
- Applying knowledge to practical problems (78 percent)
- Collaborating with other students more



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