

Facilitation in Informal Makerspaces

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Abstract: This paper presents data from three Makerspaces and examines the extent to which facilitative roles, as articulated by facilitators and their supervisors, are subsequently practiced within the Makerspaces. The data was coded for themes of facilitation as captured in field notes and interviews with personnel at three different levels of seniority (senior executive, manager and on-the-ground facilitator). We suggest possible institutional factors that impact the emergence and expression of facilitative roles and seek to improve Makerspace pedagogy.

Introduction: Informal learning environments and facilitation

Makerspaces are celebrated as innovative, student-centered learning environments. As such, much of the existing literature on Makerspaces has focused on the learner. Additionally, studies of Makerspaces examine the importance of informal learning settings (Halverson, E.R. & Sheridan, K., 2014) and the complex interplay between culture, power, and equity (Vossoughi et.al., 2016). However, facilitators play an essential role in sustaining Makerspaces. While existing work highlights tools and learners (Martin, L., 2015), future work should elucidate how facilitative roles are defined and enacted across different types of institutions.

Prior literature

While the preponderance of Makerspace research has focused on learners, there are a handful of studies that touch above facilitation, albeit, in passing. For example, Petrich et al. (2013) described facilitation through roles that served to 1) welcome and interest participants in the studio, 2) focus participant attention on an individual project, and 3) engage in dialogue with participants about their making process. This role was primarily supportive and intervention occurred when deemed necessary (Petrich et.al, 2013; Gutwill et.al., 2015). Litts (2015) found that facilitators were unwilling to push participants to explore areas that the facilitators themselves had no experience in. These findings suggest that facilitators can be instrumental to the processes and tools that participants utilize in Makerspaces. As we examine the roles that emerge within the three Makerspaces studied, we expect to see a number of themes from prior research re-emerge, particularly through a comparison between what facilitators say about their role and what they actually do. Furthermore, we hope to contribute to the discussion of how institutional factors may impact the adoption of the different roles.

Methods

Semi-structured interviews and field notes were taken at each of the three Makerspaces. Interviews were conducted on-site, one-on-one (with either a senior executive, manager, or a facilitator), and for 20-40 minutes. They were recorded, transcribed, and coded for themes of facilitation. The coded responses from interviews were then used to examine facilitation-in-action as observed and noted in field notes.

Open coding was used on the interviews and field notes. Codes were documented in conjunction with examples from each institution, where applicable, and then grouped under larger themes. These methods were chosen in order to ground comparisons between facilitation across the various Makerspaces.

Results

This paper focuses on interview responses to the prompt “describe the role of facilitators”. We identified three themes of facilitative roles: 1) following the participant’s lead while supporting them, 2) treating each participant as a unique individual, and 3) creating the Makerspace environment. Not surprisingly, many of these codes bear resemblance to, and at times mirror, prior research. For example, Pietrich et al. (2013) found that welcoming participants to the space is one of the roles that facilitators mention in interviews under the theme “Creating the Environment.” It is worth noting that these responses, and the corresponding codes, generally emphasize and support the learner-centered approach in Makerspaces. However, the extent to which these practices are effective and implemented in the field warrants a closer look at the institutions housing a Makerspace. Comparisons between interview responses and actions observed through field notes highlight the extent to which institutional frameworks guide and shape facilitation. For example, within one institution, the idea of Leading by Supporting emerged through the mantra: “wait, watch, follow”, while in other spaces, the idea of building relationships

through mentorship simply did not exist. Hence, a number of the facilitative approaches stem from an understanding of broader institutional goals and it is examining these potential institutional factors and differences that we hope to contribute to the improvement of Makerspace pedagogy.

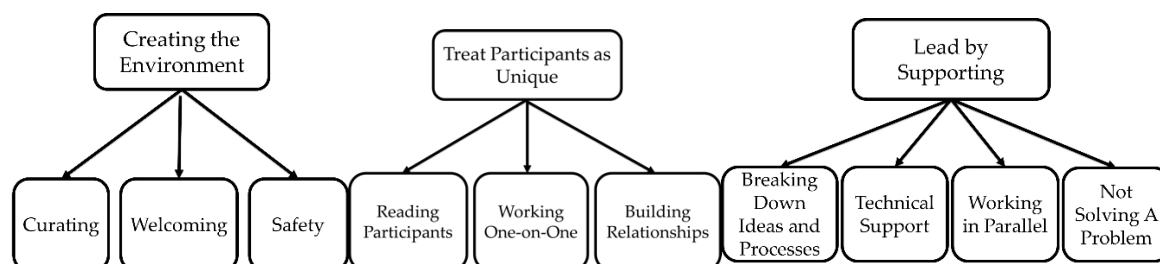


Figure 1. Codes that emerged from participant interviews about facilitation.

Conclusion

We have provided preliminary examples of Makerspaces situated within institutional structures that have noticeable impacts on the roles that facilitators occupy. Primary differences were observed in the level of personal relationships that facilitators aim to foster with participants. Within the community-oriented space, relationships were paramount, and this was clearly articulated across levels of seniority. However, in the two museum-based Makerspaces, we saw some disconnect between the stated roles of facilitators as communicated by senior executives, and the understood roles mentioned by facilitators. Furthermore, we saw a heavier focus on elements of safety, and providing technical assistance. In general, this work aims to promote conversation around differential facilitation strategies to shape a more equitable understanding of facilitation (Peppler, 2009, 97), thus improving Makerspace pedagogy. A closer look at the influence of institutional goals on facilitation within informal Makerspaces improves the professional development of facilitators in such spaces. It also advances the broader pedagogy of informal learning environments. Future work should closely examine the extent to which articulated roles of facilitation find real-time enactment and practice within informal learning environments.

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