Make to Relate: Narratives Of, and As, Community Practice

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Abstract: As young people design, build, and problem-solve within maker spaces and clubs, they talk about making. We analyze short interviews with youth makers, conducted during presentations of their products, and hypothesize a progression through frames of participation. Moving from *exploration*, to *exchange,* and on to *deliberate engagement*, these frames reflect changes in the nature of participation, appropriation of community practices and dispositions, and adoption of making as a tool for identity work and interest development.

Learning in Making

Interest in making and the maker movement is on the rise, driven both by the increasing visibility of these activities in the public sphere, and a broader shift in educational research toward informal and interest-driven learning environments in STEM education (e.g., NRC, 2009). Efforts to graft the goals of STEM educators onto existing maker practices and communities must grapple with the values, identities, and "mindset" already associated with the maker movement. In particular, researchers and educators hoping to design for learning through making can benefit from greater understanding of how youth appropriate the dispositions, discourses, problem-solving approaches, technical knowledge base, and identity of the maker community (Herrenkohl & Mertl, 2011). Further, maker clubs' encouragement of creativity and the open-ended nature of projects lend themselves to an inquiry into how and why youth re-craft their environments and what resources they draw from to do so (Bell, et al, 2013)

In this paper, we report on how young people's ways of *doing* and *telling* reflect paths toward *knowing* and *being* as makers and learners. We analyze nine short interviews with youth makers conducted as they presented at Maker Faire, a large regional exposition. These interviews constitute narratives of practice, describing challenges, goals, and resources. They also represent a cultural activity central to the maker movement: sharing what you made. Given this dual lens, we treat these data as interpersonal narratives and focus on the narrow question: how do young people participate in and talk about the practice of exhibiting their work at the Maker Faire?

Methods

As part of a larger study of young people participating in makers clubs, we interviewed eleven youth during, or shortly after, they presented a project at Maker Faire. Questions asked youth about their experiences as makers, allowing them to surface the most relevant experiences (Ching & Kafai, 2008). Three young women and eight young men, aged 11 to 15, participated. Following a grounded theory approach we made an initial pass through the transcribed interview data, during which we documented observations and potential codes. In subsequent passes we consolidated, refined, and illuminated our understanding of categories and patterns in the data.

Framing Participation

In our analysis, we noticed that youth differed in the ways they exhibited their work, and in particular how they engaged with their audience. Mapping these differences onto the young people's level of experience at Maker Faire (based on their reported number of times visiting and presenting), we constructed a progression of frames for participation in making (see Figure 1).

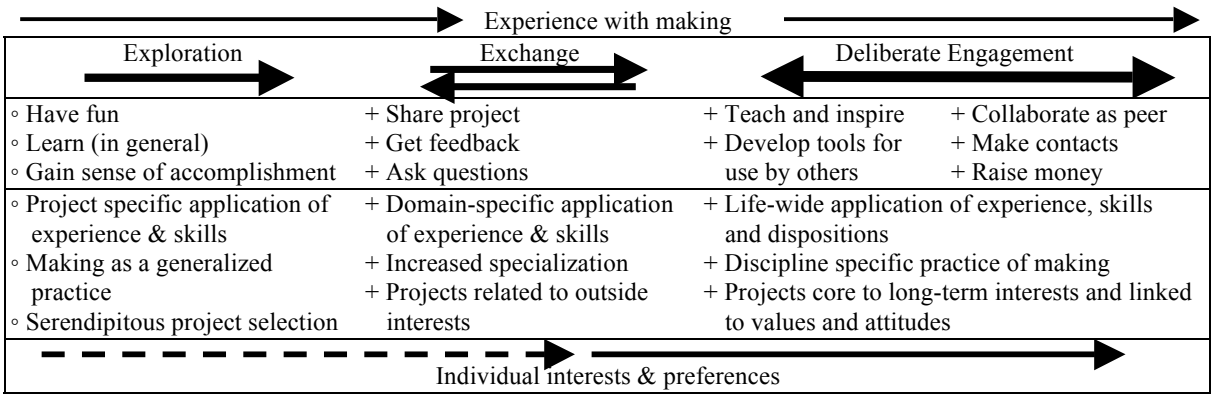

Figure 1. Hypothesized progression of frames for participation

Given the descriptive nature of our work, we see this as a *hypothesized* trajectory of participation, rather than a definitive learning sequence. Although we see these frames unfolding over time, we do not assume a linear, unidirectional trajectory, nor do we assume that these ways of participating and performing necessarily cross domains. Each frame represents a cluster of related elements.

With the space remaining, we provide illustrative examples of this progression, which moves from more egocentric frames for participation toward other-oriented and shared frames. Poster presentation of data will allow us to provide more complete portraits of the young people making, telling, and developing in this space.

On the left of Figure 1 is the *exploration* pattern. Asked what was valuable about being a part of Maker Faire, the least experienced makers emphasized the benefits of seeing and absorbing the experience: having fun, learning (generally, not a specific skill or topic), and gaining a sense of accomplishment. Asked what they would do next with what they learned in making, these young people talked about doing additional projects that were similar to their current work. They represented their project choices as somewhat serendipitous or trivial: they had happened to see an interesting project, or wanted to make something that was "loud and annoying."

In the *exchange* pattern, youth with more Maker Faire experience connected their choices to longer term interests. In one maker's words: "I was inspired – I'd already been working on it for a long time before I decided to bring it to Maker Faire…. mostly I wanted [my project] as toys, things I could actually use." Two young women used their project to link a long-term focus of imaginative play to a current hobby. These makers emphasized the importance of showing people what you did, either to get feedback or to display particular traits or skills (e.g., "creativity" or coding). They valued their enjoyment of the process, but began including others – specific mentors as well as a broader public audience – more centrally in their narratives.

In the third pattern, *deliberate engagement*, youth not only placed others within their narratives, but began to consider specific roles or outcomes for these people. They linked development of skills within making activities to future work and enduring commitments. For example, the three most experienced makers discussed the role that Maker Faire played in developing resources – material, human, or emotional – to support long-term aspirations. They also tended to think of next steps in terms of building skills (e.g., coding, metalsmithingto expand their potential as makers, rather than focusing on the next thing they could build. Most important, experienced presenters wanted to prompt action or create experiences for others. Examples ranged from enlisting knowledgeable partners and financial supporters, to creating tools or instruction that others can use, to inspiring others and "show[ing] other kids that they can make things too and they don't have to wait until they're older." (Jaimie, age 14)

Conclusion

Though drawn from a small sample, the hypothesized trajectory of participation we describe illustrates an important aspect of what it means to become a maker and a fuller participant in the maker movement. As we continue to analyze in-depth case studies of maker clubs, we will be able to refine this hypothesis to better understand the relationship of these narratives to participation in other making activities. The narratives likely reflect both variation in observable experience and in appropriation of the discourse and ideologies of the maker movement.

Understanding the ways in which youth position themselves through narratives and performance in making, and how these align with positions and practices of the larger maker community has implications for research and design. Shifts in how young people and the adults around them frame their participation are integral to learning processes and outcomes. Connecting with the conference theme, *becoming* a maker is integrally tied up with how participation is *framed in practice*. This analysis shows that young people understand their participation not only in terms of interaction with technologies and materials, but also with friends, mentors, and a larger community of makers (and potential makers). With extended participation, they may be using making to strengthen and expand identities and relationships, along with maker-specific skills of crafting and coding.

References

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