Researching Productive Connective Sites Where Interest, Learning, and Identity Intersect

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Research: Theory, Methods, and Future Plans

My research focuses on the productive *intersection of interest, learning, and identity* in kids' lives, seeking first to document and analyze connections between these areas and second to create and evaluate spaces that facilitate such connections. It is well documented that students struggle with their engagement in academic disciplines when spaces like school are felt to have different values, activities, and ways of being than home or other social spaces students value. In other words, when students feel a gap between who they are (or their "identity") at home and how they are supposed to act at school, their engagement and thus their learning suffer. This disconnect between identities in- and out-of-school tends to be more prominent among non-dominant students, and tends to exacerbate divisions of class, ethnicity, and gender. Yet when students feel more connected—when they feel like themselves in a subject area at school or in another learning setting—they tend to identify more strongly with that academic learning area. This has an additional and perhaps equally important benefit of encouraging students to think creatively by drawing on knowledge and practices across settings in their academic learning. Studying the connective spaces in kids' lives, those social settings that facilitate intersections between interest, learning, and identity, has two important values. First, we need better theories for understanding the relationship between engagement, interest, identity, and learning. Second, by understanding connective sites better, we can facilitate the development of such connections in students' lives to promote more equity and creativity in learning.

As part of supporting and studying the relationship between interest, identity, and learning I pursue three related research concerns: (1) Engaging kids in making interest-driven technological objects that unite interests and learning through the creation of objects; (2) Studying and providing design feedback on massive online spaces for children and youth that can act as connective spaces; (3) Developing blended methods that incorporate large scale data mining and ethnographic analysis in order to understand processes of learning, engagement, and identity development in both digital design making and massive online spaces.

Learning and Identifying through Making with New Technologies

Much research has focused on the importance of digital media in providing a means for social and creative expression in youths' daily lives. Yet the practices associated with "geeking out," those practices that involve the most fluency in technical design, have often been less accessible to youth, in particular because high tech communities have been described as a locked clubhouse culturally inaccessible or irrelevant to many women and other non-dominant students. Helping youth identify as part of these communities—through both their sense of self and their ability to participate in practices relevant to high tech communities (Fields & Enyedy, 2013)—is a challenge to broadening participation. Yet making engaging, hybrid artifacts that have relevance in multiple social arenas points to a possible way to mediate between the development of technical skills, personal relevance, and a broader sense of having a place in high-tech communities. In particular, creating artifacts with tangible yet interactive layers can facilitate relevance with multiple social groups in ways that support an individual's belonging in those different communities. In my research I consider the properties and processes of making such *technological objects* and how they can work as mediators that connect areas of youths' lives, including the opportunity to express personal interests, to build relevance with multiple social groups including friends, peers, and family members, and to develop pertinent technical skills.

My studies of students' making such connective and technological artifacts are currently in the context of two different technologies: the hybrid domain of electronic textiles (e-textiles) and the media-based visual programming environment of Scratch. In these areas I have delved into the what and how kids learn about crafting, electronics, and programming with e-textiles (Kafai, Fields & Searle, 2012), the role of aesthetics in promoting not just identification but increased learning with e-textiles (Fields, Kafai, & Searle, 2012), and the role of gender, interests, and prior expertise in students' identification with "tech" domains like computing and circuitry. Currently I am working on theoretical explanations of how the process of making these artifacts involves layers of learning and identification and how these artifacts can act as connective laminate objects that promote personal relevance as well as relevance with family, friends, and academic disciplines (Fields, Searle, & Kafai, in preparation).

In relation to Scratch I have been studying how different design challenges can promote learning of intermediate levels of programming while also engaging different audiences of youth (Kafai, Fields, Burke, Roque & Monroy-Hernandez, 2012). I have conducted these design challenges in both local workshops and the online social networking forum of Scratch.mit.edu, and often across both simultaneously, studying the role of community, collaboration, and constructive criticism in promoting learning and engagement with computing designs. I am also working on developing more fine-grained models of learning to program in Scratch. This research has implications for promoting diversity in fields of science, technology and engineering education in particular.

Studying and Designing Connected Spaces

There is great promise for learning technical literacies, developing social skills and contributing to our shared culture through participation in online sites. Indeed, kids are participating in growing numbers on online social sites, both at school and at home. Yet these sites are largely understudied and their educational potential generally untapped, especially in regard to children's participation in such sites, due either to societal fears about children's safety or impoverished designs (Grimes & Fields, 2012). Yet online sites can also serve as spaces for *connected play*, extending play from the everyday spaces of kids' lives at home, in school, in clubs and with friends into massive online websites where kids can take on new identities, engage in digital content creation, and learn from others (Kafai & Fields, in press). In a recent white paper I have argued for a broader look at children's play online, encouraging researchers to look at a wider range of social networking forums that children are likely to occupy, including virtual worlds, online games, do-it-yourself (DIY) based design sites, and networks accessed through console games (Grimes & Fields, 2012). Though in the past I have focused on virtual worlds (Kafai & Fields, in press), my current focus is on sites where children make and share designs, such as Scratch.mit.edu where social activity is centered around sharing video games, animations, and art created through programming. My goals include highlighting the ways that social networking and creative design can be mutually supportive, analyzing productive website designs, and illuminating children's own social and design innovations on such sites.

Developing More Robust Methods to Document Learning and Participation

Related to these studies of designs and online connective spaces, we must develop new methodologies for analyzing learning, social processes of identification, and interest development. I am currently pursuing ways to bring together ethnographic methods with educational data mining in an effort to better illuminate processes of learning to program with Scratch, children's online cultures of design, and the relationship between identity and learning with design. This involves developing new ways to process log files of online interactions (clicks, chat, "friend" links, uploads, downloads), collect and compare save states of computer programs, and analyze relationships between data gathered online or computationally (i.e. participation patterns, learning progressions) in addition to local social interactions, interviews, and aesthetic aspects of participants' designs. I am applying some of these methods in studying the online Scratch website to analyze participation patterns, programming profiles, and textual analysis of kids' comments to better understand the collaborative and supportive nature of the site for kids on a massive scale (Fields, Giang, & Kafai, 2013).

Selected References

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