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Participatory Culture as a Model for How New Media Technologies Can Change Public Schools
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ABSTRACT
This paper addresses the gap between the potential of new media learning tools for transforming learning in and out of schools and the schools’ commitment to technologies that support testing and accountability. We propose the idea of participatory culture as a robust model for how to think about the emerging practices of learning in digital media spaces. Participatory cultures describe the social interactions and activity structures in which real-world learners engage to advance their interests. Participatory cultures retain the concept of consequential outcomes, and add robust accounts of the social and technological ways in which learners interact to attain outcomes. We argue that the gap between schools and digital worlds can be intentionally bridged if we match the affordances of participatory cultures that traditional schools often struggle to meet. The participatory culture framework can help to make sense of learning in and out of schools, and points toward viable paths to integrate the best of new media experience into contemporary school design.

Keywords: Participatory culture, public schools

INTRODUCTION
In the 21st century, a wave of new media technologies is redefining what we mean by learning environments in everyday life. We are in the midst of an information revolution that provides unprecedented levels of access to knowledge, skills and communities through digital media technologies. Digital media tools let us answer our questions, whenever we have them, and provide answers to questions that others pose. Video games invite us to experience historical and fantasy worlds, experiment with new identities and miraculous powers, and participate in social interaction at a worldwide scale. These opportunities for digital participation all involve learning – the exploration of new questions, the availability of synchronous and asynchronous mentoring, and in the use of demonstration and production as forms of assessing the quality of knowledge and skills.

Over the past 25 years, schools and new media environments have established an uneasy truce in the world of learning. Reform, particularly in the k-12 world, has focused on developing standards that specify the same content and skill outcomes, regardless of student interest. Consequently, schools insist on high-quality, standardized learning tools and environments that enable learning for students. New media spaces, on the other hand, flourish when tools and environments are transformed by users in accordance with their interests. The gap between schools and new media becomes clear when schools are defined as serious places where real learning is supposed to happen, and mastery of new media environments, from video games to social media, are considered unworthy, peripheral activities that do not “move the needle” on improving real learning.

The uneasy tension between school and new media technologies has led to an unfortunate situation where, on the one hand, education reformers measure the quality of digital media learning tools in terms of pre-existing institutional outcomes (i.e., Carr, 2008; Young, Slota, & Cutler, 2012), while on the other, digital media learning researchers write schools off as an impossible venues for real change (i.e., Gee, 2013). The impasse has resulted in an unsettling split world for students (and increasingly, for educators) who are expected to use cutting-edge tools for learning and communication outside of schools, and then revert to more traditional technologies for in school learning (Halverson & Shapiro, 2013).

Eventually, in an ideal world, the barrier between practices of learning in and out of schools may simply erode away. In many families, learners are already using new media and social technologies to facilitate school-based learning. However, learning to use media technologies for learning most often takes place in...
homes – learning from the habits of family members engaged in information economy work – and not in schools (Watkins, 2013). A participation gap is emerging between students who are able to integrate new media into their learning lives, versus students who use media mainly for social interaction and entertainment purposes (Jenkins, Purushotma, Clinton, Weigel, & Robison, 2007). We are beginning to see real differences between students who understand how to create learning environments from digital media tools to amplify their school learning experiences and students who use digital media primarily for entertainment and social communication (Pabilonia, 2015; Project Tomorrow, 2015). The free access to many innovations in the digital world has great promise in providing opportunities for all students to engage in 21st century learning, but without the active role of schools to remediate the class distinctions reflected in the usage of new technologies for learning through their facilitation of appropriate and effective use of the tools, the participation gap will widen in ways that reinforce social inequalities.

This paper addresses the gap between the potential of new media learning tools for transforming learning in and out of schools and the schools’ commitment to technologies that support testing and accountability. We argue that the gap between schools and digital worlds can be intentionally bridged if we match the affordances of widely-used new media environments and tools, such as makerspaces, video games, citizen science, fantasy sports and youth media arts organizations, with needs that traditional schools often struggle to meet. Intentionally matching affordances with needs means that educators do not have to invent entirely new approaches to teaching and learning. Rather, they can leverage learning practices widely used outside schools to answer questions raised by teachers and learners in schools.

One obstacle to bridging this gap, though, is the different interpretation of what we mean by learning in and out of schools. When schools define learning in terms of achievement as measured by standardized tests, they adhere to a dominant perspective that provides a common direction for all schools to measure reform progress. At the same time, a singular focus on achievement can blur an understanding of the social and material conditions for successful learning. We propose the idea of participatory culture as a robust model for how to think about the emerging practices of learning in digital media spaces. Participatory cultures describe the social interactions and activity structures in which real-world learners engage to advance their interests. Participatory cultures retain the concept of consequential outcomes, and add robust accounts of the social and technological ways in which learners interact to attain outcomes. The participatory culture framework can help to make sense of learning in and out of schools, and points toward viable paths to integrate the best of new media experience into contemporary school design.

**PARTICIPATORY CULTURES**

Henry Jenkins and his colleagues have reframed how we understand the role of production and learning in popular media cultures (Jenkins, et al, 2007). Their work encourages us to think of everyday media interaction as an active, social process that, in connection with the Internet, connects us with like-minded people around the world in collaborative work and learning. The development of participatory cultures began with Jenkins’ research on fan cultures. Fan cultures, according to Jenkins, blur the definitions “between forms of cultural production and forms of social exchange” by inviting people to communicate, produce and circulate content and ideas according to their interests (Jenkins, Ito, & Boyd, 2015, p. 2). The learning that was obviously taking place in fan cultures sparked Jenkins and his colleagues to think about a model of Internet, interest-based learning on a broader scale. Their participatory culture framework defines the functions of innovative learning spaces in terms of principles that can be widely applied to the design of learning environments:

A participatory culture is a culture with relatively low barriers to artistic expression and civic engagement, strong support for creating and sharing one’s creations, and some type of informal mentorship whereby what is known by the most experienced is passed along to novices. A participatory culture is also one in which members believe their contributions matter, and feel some degree of social connection with one another (Jenkins, et al, 2007, p. 3).

Participatory cultures grow from interest-based interactions, over time, and describe networks of contribution and communication. They tend to grow in third spaces, around and outside of institutions, in which members bring together media-driven content in spaces that allow for the exchange of ideas. The learning model for participatory cultures is grounded in very old practices of apprenticeship and situated learning where learners come to understand how to think and act like experts through continuous cycles of discussion, production, critique and refinement of work (Lave &
While new media technologies are not essential to the function of participatory cultures, the access to interest-based communities is radically enhanced by Internet availability. Massively multi-player online games, for example, involve players from around the world in complex forms of play, making, advice-giving (and getting), and critique. Access to virtual worlds makes participatory cultures come alive as an accessible model for thinking about how to redefine teaching and learning.

Jenkins and colleagues describe four key functions that define the operation of any participatory culture: affiliations, expressions, collaborative problem solving and circulations.

Affiliations express the interest-driven aspect of participatory cultures. Members elect to join and people can belong to multiple participatory cultures. One of the key affordances of affiliations is the ability to grow new interests based on the social connections made in the culture. Players of one game begin to play another; participants in one discussion forum learn about new interests and join other forums. Affiliation is an essentially social activity of interacting with others who share interests. Affiliations include members with a range of ability levels whose expertise becomes a community resource for mentoring and the induction of novice participants.

The affiliations aspect of participatory cultures describes why maker spaces have become a popular reform initiative in schools. Maker spaces are “are informal sites for creative production in art, science, and engineering where people of all ages blend digital and physical technologies to explore ideas, learn technical skills, and create new products” (Sheridan, Halverson, Litts, Brahms, Jacobs-Priebe, & Owens, 2014, p. 505). Educators can tap into makerspaces as places for students to get interested in different kinds of activities guided by the practices of other, veteran members who are engaged in making projects of their own. Schools with robust arts or 4-H programs already have the functions of maker space learning environments in-house; one goal would be for educators to study how learning occurs in these spaces, and to think about transferring the interest-based learning principles to new activities, such as project-based learning. Educators could adapt the affordances of affinity-based learning into day-to-day practices of teaching and learning through:

- repurposing common-use spaces to support interest-based exploration;
- using maker activities to support bridges to disciplinary learning in science, social studies, computation, and the arts.

Expressions define the production-focused aspect of participatory cultures. Members engage in cycles of conceiving, representing, and sharing ideas through a range of products including videos, games, and critiques (Halverson, 2012). The initial steps toward membership, described by Lave & Wenger (1991) as legitimate peripheral participation, invite new members to engage in tasks that are necessary to the community’s functioning, but not yet central to its success. This apprentice-like approach means that newcomers do a lot of watching and learning. As members become more familiar with the culture, they begin to communicate like veteran members, discuss the work of other participants, and finally to produce like full members. For example, participants in instructional video communities on YouTube begin by watching the work of others as a means of completing a task of interest, move to commenting on the instructional videos, and eventually end up making videos themselves. Full membership requires supporting new members along the way through critique and advice for new making.

Schools can move toward the design principle of expressions by building student interests and authentic audiences into daily practices. Three pathways for educators to connect the affordances of expressions into the contexts of real schools include:

- replace a traditional research project with a digital media reporting project;
- find occasions to connect with practicing media arts communities in the area;
- work with school, community and virtual media providers to seek authentic audiences for student work.

Many schools already have consequential projects, such as a senior thesis or a capstone project, which are designed to draw together aspects of the student’s education experience. Building opportunities for students to engage in digital media making communities, connect with real media artists, and share work with interested audiences allows these kinds of activities to form a bridge based upon the resilient structures of participatory cultures.

Collaborative problem solving is the knowledge-building aspect of participatory cultures. Members work together through communities such as Wikipedia and Reddit, to address questions whose answers are
unknown. Questions range from “who will be the most productive second-baseman in the American League?” to “what is the best way to teach computational literacy with simple machines?” Participatory cultures are organized to coordinate collaborative inquiry toward solving unknown questions, distribute knowledge across the community, then work toward specifying the next set of questions on the horizon.

Schools often struggle with collaborative problem-solving because of the requirements of standards-based pedagogy to teach what is already known (Chinn & Malhotra, 2002; Dean & Kuhn, 2007; Berland, Schwartz, Krist, Kenyon, & Reiser, 2015). If teaching is about getting students to acquire what teachers already know, the space for knowledge-building is shut down before it can ever open. Citizen science has emerged in recent years as a pathway to engage learners in the process of science as open-ended inquiry. Citizen science communities are organized to coordinate non-specialist engagement in addressing unsolved problems in science research. Citizen science provides hub-and-wheel structure to connect experts who set the terms of the inquiry with amateurs who collect, and sometimes analyze, data to address the question. There are hundreds of citizen science projects available to learners ranging from bird census data collection to planet mapping; from protein folding to Zika viral infection tracking. Each project invites participants to collect data and to investigate the relation of information to conclusion that constitutes the work of open-ended inquiry. Educators interested in building collaborative problem-solving into their schools could consider:

- **including at least one citizen science project per year** for all students; and

- developing tools to ground citizen science inquiry projects in local communities.

*Circulations describe the networks through which interactions and information flow. These networks are governed by participant interests in communicating and sharing knowledge. While place-based circulation networks reinforce existing practices and limit the abilities of members to benefit from loose connections to other networks, in virtual cultures social networks link across communities to draw in new members and interests and to provide contrast to the everyday, taken-for-granted aspects of our cultures. Participants use loosely connected networks to bring solutions from one community to address the problems of other communities (Johnson, 2011). Widened circulation networks enable members to pursue new interests and to reflect on status quo practices."

The central problem with designing circulations for schools is that most people – educators and students as well – already participate in thriving circulation networks outside of schools. Circulations of information in schools among students can look suspiciously like cheating, or at least gossip, and can be discouraged before the benefits of information exchange are realized. One path for school designers to consider is to use tools for information exchange to spark professional interaction among educators first. Engaging with user-curated content and exchange tools, such as Pinterest, to cultivate extended, virtual professional learning communities can readily show an example of the benefits of new media circulation for learning. Schools could:

- complement district and school provided resource portals by encouraging educators to participate in public online platforms; and

- engage in online sharing platforms to develop professional networks that lead to further learning opportunities.

**CONCLUSIONS**

The four key principles of participatory cultures do not map directly onto the cultures of schooling, though they have proven remarkably versatile in describing a wide range of naturally occurring learning environments. Currently, schools are not organized around the interests of learners. What is in the student’s interest is specified

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1 Most ordinary science inquiry rests on a wide and deep context of what is already known in order to investigate the unknown. Science education is, in part, designed to prepare young scientists to acquire this rich variety of skills and knowledge in order to participate in authentic science inquiry. Still, the absence of true unknowns from the traditional science curriculum can give learners the sense that science is about memorizing facts and replicating procedures, rather than exploring open questions.

2 [http://eBird.org](http://eBird.org)

3 [https://www.planethunters.org](https://www.planethunters.org)

4 [http://foldit.org](http://foldit.org)

5 [http://www.citizenscience.us/imp/](http://www.citizenscience.us/imp/)

6 Such as, for example, the ARIS tool kit that allows educators and learners to build place based inquiry and game activities (arisgames.org and siftr.org)
by curricular standards, not by the learner. Educators are pressed each year to get students to “buy in” to school, typically with the promise of rewards or punishments that will result from the effort put forth in school. Expressions typically take the form of homework and the circulation practices are limited almost exclusively to the teacher and occasionally to peers. Curricula are composed of problems already solved by others that students need to replicate, and circulations are suspiciously controlled because of the links to cheating. If anything, the features of participatory cultures seem to highlight, rather than bridge, the gap between learning inside and outside of schools.

The path forward could be for school designers to think about the design principles of participatory cultures as models for developing learning and professional interaction in schools. Schools can look to the technologies and practices of participatory cultures to shift the schooling experience in small ways toward more relevant, immersive, and authentic experiences for teachers and students. The goal of the incorporation of participatory cultures into schools is to bring together the successful practices of everyday learning into the specialized world of schooling. Each principle provides a possible direction for the design of learning environments in school. A school design that adopts the participatory cultures model would include interest-based, production-focused, knowledge-building, and networked learning. Redesigning schools according to these principles will not transform schools into participatory cultures overnight, but may well help educators and students think about their work in terms of the leading characteristics of participatory cultures. The promise is to help increase school capacity to support of new modes of learning and collaborating so that the practices of schooling will be seamlessly integrated into advances in learning technologies.

In Participatory Cultures in a Networked Era (2015), Henry Jenkins, Mimi Ito and danah boyd discuss the impact of new media on the evolution of participatory cultures. Even as learning outside of schools now includes experiences sparked by Twitter, Minecraft, and Google Docs, the relation of participatory cultures and schools remains in tension. Henry Jenkins explains:

Schools often give this message that what matters to young people doesn’t matter in school. As they do so, they also signal the opposite – that what matters in school doesn’t have any meaning in the rest of your life. (Jenkins, 2015, p. 117)

The contrast between the kinds of disciplinary learning that thrives in many schools and the new media that shape learning in the rest of the world is a core design challenge of 21st Century schooling. However, as we know from our experiences working with schools, educators and students are leading the way in creating pathways for participatory cultures to live in schools. Innovations such as personalized learning (Halverson, Barnicle, Hackett, Rawat, Rutledge, Kallio, Mould, & Mertes, 2015) and connected learning (Ito, Gutierrez, Livingston, Penuel, Rhodes, Salen, Schor, Sefton-Green, & Watkins, 2013) are mapping new spaces where digital media can seamlessly transform conventional practices in teaching and learning. We hope that participatory cultures can provide educators, policy makers and researchers with new ideas to redesign 21st century learning in schools.

REFERENCES


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