Supporting Young New Media Producers Across Learning Spaces: A Longitudinal Study of the Digital Youth Network

Brigid Barron, Amber Levinson, Caitlin K. Martin, Veronique Mertl, Daniel Stringer, Maryanna Rogers
Stanford University, 485 Lausen Mall, Stanford, CA
barronbj@stanford.edu, amlevinson@stanford.edu, ckmartin@stanford.edu, dstring@stanford.edu,
maryanna@stanford.edu
Kimberly Austin, Nichole Pinkard
Urban Education Institute, University of Chicago, 1313 E. 60th St., Chicago, IL, npinkard@uei-schools.org
Kimberly Richards
University of Illinois at Chicago, 1007 W. Harrison, Chicago, IL 60607, karich1979@gmail.com
Kimberly Gomez
University of Pittsburgh, 5105 Wesley W. Posvar Hall, Pittsburgh, PA

Abstract: In this symposium, we will report on a mixed method, three-year longitudinal study that documented a learning environment intentionally designed to provide urban youth with tools and learning opportunities that would allow them to create, collaborate and communicate with new media production technologies. The design of this in-school and after-school program was motivated by concern over growing divides with respect to access to learning environments that can support empowered and generative uses of technology. Through a unique program that offered both a wide array of special interest after school clubs (e.g. robotics, graphic design, digital broadcast and movie making, music recording and remixing, video game development) and mandatory media arts classes during the school day, learners were able to develop broad and deep experiences across the middle school years. The program of research involved an ethnographic study focused on the learning environment, nine case studies of young producers and their learning ecologies across home, school, and community, and quantitative tracking of the entire cohort over time. In this session, four papers will be shared that describe 1) the environment; 2) the theoretical framework guiding the research, research questions, and associated methods; 3) the development of learners as creative producers; and 4) the role of artist-mentors as media arts instructors. The contributions of the symposium include sharing a unique interdisciplinary collaboration and the results of a unique experiment designed to bridge divides while innovating a new ecological model of learning.

Introduction

When the 6th graders of today enter adulthood in 2020, what will it mean to be a productive, informed and literate citizen? We contend that being literate in 2020 will require the need to fluidly use multiple modalities (e.g. text, aural, graphic, cinematic, and interactive) to communicate locally and globally for personal and professional uses. An informed and empowered citizen will need to be digitally literate, possessing the ability to both produce and critically analyze media in multiple forms in order to fully communicate. New media literacies, broadly defined by Jenkins (2006) as "a set of cultural competencies and social skills that young people need in the new media landscape" include abilities to not only interpret, but also *create* using various digital modalities. This shift in the communicative value of media objects beyond the field of entertainment raises the question of how to ensure that all citizens, especially youth, are prepared to communicate effectively. The national dialogue, in the form of calls for more technology in the classroom, more tech savvy teachers, technology standards (NRC, 1999; ISTE, 2007), and a better prepared workforce (Levy & Murnane, 2004), has apparently placed this task in the hands of schools, with communities and homes providing backup support.

On the surface this makes sense, as the development of students as literate beings has traditionally and "officially" been the purview of the school. However, research shows that the literate practices of the home and community have a predictive pattern in determining how literate a student will become (Neuman & Roskos, 1993). Thus, while schools do support youth in becoming literate, they have not routinely been able to close the gap that is already apparent when students first enter school. In addition to the historical inability of schools to close the literacy gap, we must also draw attention to the evidence that shows that schools traditionally have not played a major role in the development of young people's new media and other 21st century literacies. The accounts we have of "digital natives" reveals that their motivations, access, and mentoring is located most often outside of the school through their families, neighbors, peers, and/or summer programs even in the most advantaged of communities (Ito et al, 2008; Barron, 2004; Prensky 2001).

While acknowledging the many challenges of assigning responsibility for the development of new media literacies to schools, we must recognize that schools have assumed the role of developing youths' literacy

(text or digital) because they are the one institutional commonality for almost all American youth, and hence, provide the best opportunity of ensuring all citizens access to literacy instruction. We contend that any solution for the development of digital literacy for all must include the school to ensure that all youth can access learning opportunities in addition to computing tools. Our challenge is to create learning environments that apply findings from research on digital natives and traditional literacy instruction and that build upon previous successes in digital media-based out-of-school programs in order to develop all youths' new media literacies, especially those in underserved communities.

In this symposium, we will report on a mixed method, three-year longitudinal study that documented one learning environment intentionally designed to provide urban youth with tools and learning opportunities that would allow them to create, collaborate and communicate with new media production technologies. The design of this in-school and after-school program was motivated by concern over growing divides in access to learning environments that can support empowered and generative uses of technology. Through a unique program that offered both a wide array of special interest after school clubs (e.g. robotics, graphic design, digital broadcast and movie making, music recording and remixing, video game development) and mandatory media arts classes during the school day, learners were able to develop broad and deep experiences across the middle school years. The program of research involved an ethnographic study focused on the learning environment, nine case studies of young producers and their learning ecologies across home, school, and community, and quantitative tracking of the entire cohort over time. In this session, four papers will be shared that describe 1) the environment; 2) the theoretical framework guiding the research and associated methods; 3) the development of learners as creative producers; and 4) the role of the artist-mentors as media arts instructors. The contributions of the symposium include sharing a unique interdisciplinary collaboration and the results of a unique experiment designed to bridge divides while innovating a new ecological model of learning. Our discussant for the symposium section will be Roy Pea.

The Digital Youth Network Model (Pinkard & Gomez)

Digital Youth Network

DYN offers youth a collection of overlapping affinity spaces that challenge them to develop and use new media literacies in their interactions with classmates, mentors, teachers, family, and friends in a variety of contexts. The voluntary social networks formed around new media have been termed affinity spaces by Gee (2004), participatory cultures by Jenkins (2006), and networked publics by Ito (2008). According to Jenkins (2006), the key characteristics of participatory cultures are low barriers to individual expression and engagement, strong support for creativity and sharing one's creations, and informal mentorship of less experienced participants. In successful cultures of participation, individuals believe their contributions matter and care about how their creations are viewed by others. Participatory cultures can support youth in the collaborative creation of new media artifacts that serve personally meaningful goals—such as engaging in media exchanges via social networks—while simultaneously developing new media literacies essential to 21st century citizenship. In recent work, Ito (2008) has provided a window into how youth are participating in these social networks and how participation affects their identities as individual consumers and producers of new media as well as citizens in the world.

Informed by these and other findings, the Digital Youth Network explicitly combines the affordances of the different contexts where youth spend their time into a dynamic learning environment that both teaches youth how to use new media literacies and creates meaningful opportunities for youth to use these new media literacies. It is a model for the construction of a new youth-serving institution that is unbounded by time or space. The core of the model spans the worlds of school, home, after-school, and online activities, and provides youth with: (a) access and training in the use of new media literacy tools; (b) meaningful activities where the development of new media literacies is essential for accomplishing goals and (c) a continuum of established new media artist-mentors (high school through professionals) who develop students' technical skills, serve as role models, and provide students access to the communities of practice surrounding digital media-based careers. In addition, the program has a social agenda that recognizes the uniquely urban minority experiences of the students and draws from, refers to, and uses these experiences as a means of challenging students to analyze and critique current forms of media and take reflexive stances. Students are encouraged to use critique to improve upon the existing content and form found in popular media and incorporate this knowledge into their original media products.

Opportunities for students to use their new media literacies include explicit connections to school-based curricula, interest-based clubs, called "pods", that require youth to use new media literacies in order to participate, and spaces and competitions (both virtual and place-based) where youth are supported in using new media literacies to explore their own questions and push their imagination. The DYN program is structured into two components: in-school media arts classes and after-school pods. The mandatory school-day media classes ensure that all students are exposed to a broad set of literacies while the optional after-school pods (e.g.

including digital design, digital music, digital radio, digital video, digital queendom [a girls only space], spoken word, video game design, and robotics) enable all students to build on the breadth of exposure received in school and to identify skills of their choice to explore in-depth. The combination of in-school and out-of-school programming allows teachers to embed digital literacy into instruction with a confidence that the students have a base of knowledge and understanding with new media concepts and tools. Below are brief descriptions of two key components of the DYN Model.

New Media Fluent Artist-Mentors

A key component of the DYN program is the use of practicing new media artists as teachers and pod leaders. These artist-mentors are able to combine their work portfolio, technical fluency and their cultural capital to develop learning spaces that often mimic professional studios and provide a contrast to traditional learning environments found in schools. While artist-mentors enter with many resources, the DYN model provides extensive professional development designed to guide them to take their knowledge of new media and present it in learnable chunks for youth. In addition, all artist-mentors are asked to enact the DYN model of instruction in order to provide youth some consistency across the DYN program.

RemixWorld: A Social Learning Network

Youth have access to virtual spaces for collaboration that address the need to provide diverse methods for reaching a large number of youth. RemixWorld is DYN's private social networking and learning online space. It is a community of active media producers and consumers made up of DYN youth participants and select adult mentors. With a familiar interface and similar functionality to popular online communities, students are able to easily share and critique videos, songs, podcasts, graphic designs, and more. Users share perspectives and dialogue through regular blog postings and discussion threads. While the basic skeleton resembles many existing social networking sites, customized adaptations (e.g. virtual currency, media rubrics, competency-based new media leveling up system, self-paced online learning modules), targeted modeling of productive use, and integration of the site in DYN activities, has positioned RemixWorld as a promising tool for scaffolding media critique. We've been able to leverage the affordances of traditional social networking sites to increase student engagement and extend youth and artist-mentor collaborative opportunities. Less outgoing students have found it easier to share their voices online, and all students are able to immediately share their projects with peers and experienced artists for immediate feedback.

Theoretical Framework and Research Methods (Barron & Martin)

Theoretical Framework

In order to capture the multiple, interwoven facets of the DYN program model, our theoretical framework draws on ecological and developmental perspectives that draw attention to the many life spaces where learners spend time that can all contribute to learning. These perspectives also highlight the important roles of social support in developing and supporting their emerging interests and point to the role of the child in creating their own learning opportunities (Barron, 2006; Bronfenbrenner, 1979). We also draw on theories of interest development that conceptualize the evolution of topical interests as moving from temporary periods of fleeting attention to more sustained interests that become stable and increasingly self-sustaining (Dewey, 1913; Hidi & Renninger, 2006). Finally, we draw on socio-cultural historical theories of learning that foreground the intertwining of cultural practice, identity and the development of skills, knowledge, and expressive capacities (Lave & Wenger, 1991; Wenger, 1998). In particular we draw on positioning theory, which has developed to account for the process by which people become socially identified with broader social categories (Harre & VanLagenhove, 1991; Nasir & Saxe, 2003). As described by Davies and Harre (1990), this process can include interactive positioning, when one individual positions another, and reflexive positioning, when one positions oneself. These theories broaden the scope of what has traditionally been considered as learning to go beyond knowledge or expertise to include the ways that learners' conceptualize themselves, and they draw attention to the role of social processes in positioning learners as particular types of contributors.

Methodological and Analytical Approach

Our research is designed to chart the varied ways adolescents choose to take up different media production activities and to begin to understand the conditions under which students adopt goals for developing their own creative work with digital media tools. Guiding questions for this study were exploratory and four-fold: 1) Under what conditions do new media design projects lead to a diversification and enrichment of students' learning ecologies across school, home, and community settings?; 2) What 21st century capacities are nurtured through new media design projects and how can we assess these?; 3) How do design projects support students'

current and future identities as creators, authors, and critiquers of new media?; 4) Finally, what design principles can be derived that might be shared with other sites?

Renaissance Academy, one of several schools currently using the DYN model, is an inner-city charter school serving approximately 140 6-8 graders from middle to low-income households, most of whom are African American. Our research uses a longitudinal design to chart the growth of students' technology-based interests, participation, and project work. We follow a whole cohort of 50 learners at Renaissance Academy using quantitative metrics that gave us insight into their confidence, interest, expertise, access to tools and use of learning resources, and carry out focused case studies with a subset of the students. For these students we have constructed technobiographies (Barron, 2006) based on accounts provided in interviews, through observations, and through analysis of project artifacts in order to chart learning activities across time and setting. We use interviews to obtain an historical account from the learner's perspective of the emergence and evolution of projects. Interviews with mentors provide first person accounts of goals for learning, creation, and their perceptions of student growth.

Students were observed during DYN programs during and after school and on the Remix World virtual space. Researchers used field notes to document students' skills, creation of media artifacts, artifact critiques, and informal conversations about student experiences in the physical and virtual media consumer and producer spaces. Three researchers observed more than 195 hours of in school classes and after school pods and documented this observation using field notes. Researchers focused on: (1) instructional delivery, (2) opportunities for production and presentation, and (3) adult and youth interactions around instruction and creation. Student work and video documentation of student projects collected by researchers and artist-mentors offer additional data.

Positioning learners as creative and critical producers (Levinson, Mertl, Stringer, & Rogers)

As part of our analysis of students' learning ecologies, our study looks at instructor practices as they position learners in the DYN program. This section of the symposium explores in detail how students are positioned as creative and critical producers. We describe examples of student creation in context, and how the DYN artist-mentors position students not only to look critically at ideas presented to them, but also to create their own responses to what they see and hear. We use the term "creative producers" to designate individuals who express their own ideas by producing original artifacts. "Critical producers" is an adaptation of "critical consumers." The latter are individuals who can analyze messages they receive in a critical way, understanding intent behind them and recognizing the structures of manipulation or oppression they might contain. We use the term "critical producers" to recognize individuals who do not only analyze messages but produce media that communicates their own response.

Positioning theory has developed to account for the process by which people become socially identified with broader social categories, often to the detriment of those who hold less power (Harre & VanLagenhove, 1991; Nasir & Saxe, 2003). As described by Davies and Harre (1990), positioning can include interactive positioning, when one positions another, and reflexive positioning, when one positions oneself. Our analysis is based on a framework informed by Holland & Leander, who consider positioning a productive process that allows for agency on the part of an individual who may not agree with an assigned position (2004). The production or use of cultural artifacts such as songs, stories, or images can mediate positioning because they persist over time and can be used as resources for either interactive or reflexive positioning (Holland & Leander, 2004). The mediated nature of positioning is particularly relevant for our analysis, as we show that the production of an artifact provides a basis for the repeated repositioning of girls as legitimate contributors to a particular creative form. The artifact verbally articulates a rejection of a perceived position and evidences the position's fallacy. Holland & Leander's work shapes how we consider positioning, providing us with a series of underlying questions we use to understand how mentors support the development of students' creative agency.

Our analysis uses two examples from the DYN program as a window into the positioning process - a rap song written and recorded by a group of female students and a set of projects produced by an individual student. In describing how student production was inspired, carried out and disseminated, we identify three phases of positioning in the instructor practices: (1) inviting students to discourse, (2) guiding them through the process of creating original artifacts as statements or responses in that discourse, and (3) using artifacts produced to inspire and provoke further creations by the students. In addition, we observe that the instructors use dominant stereotypes and structures of oppression as instigators of discourse. Beyond the students' interactions with the program artist-mentors, aspects of the program design such as specialized online sharing forums augment the potential impact of these positions. The symposium presentation of this paper will include examples of these processes and examples of work that we exclude here due to space limitations.

A collaborative group project case: Jappin'

In the collaborative project case, a group of female students produced a rap song entitled "Jappin,'" inspired by a conversation in the school-day New Media Arts class. In the first phase of the positioning process, students were invited to discourse around "Merchants of Cool," a documentary screened in class. The film presented "personas" – in this case, stereotypes of male and female teens that are often projected in mainstream media. The artist-mentor then led a discussion about the documentary, where students invited to position themselves in relationship to these figures, accepting, rejecting or renegotiating the personas in the film. The classroom conversation became heated, as the boys in the class expressed approval of the female stereotypes and the girls took the opposite viewpoint. A group of girls, inspired by the discussion itself and the journal entries they were asked to write afterwards, responded to the boys' attitudes in the form of a rap song. At this point, the second phase of positioning, guided production, began. All students were familiar with recording and poetry/song techniques introduced during the Media Arts class and some students had additional knowledge from the after school pods. Although the song was their own idea, the girls took advantage of the resources available to them in the DYN program, seeking guidance from the artist-mentor teaching the class, and recording their piece in the DYN studio. Lastly, in the third stage, once the song had been written, performed and recorded, the artist-mentors helped position the girls' work in such a way that it circulated within the school community. *Jappin'* invited responses from other students online, in pods, and in classes, starting a new cycle of critical production.

An individual student case: Maurice

Maurice, came into the sixth grade with only basic knowledge of computers and simple productivity software but quickly emerged as one of the most active participants and creators in the DYN program. Just as the group of students in the previous case were invited to discourse via the documentary screening, in school day and after-school classes Maurice was invited to research or reflect on a range of topics including minstrel shows, black pride and global warming, which formed the basis for some of the videos. In addition to the DYN artist-mentors, Maurice's parents served as important "inviters" in this stage of positioning.

Maurice adopted the DYN classes and pods as a forum for communicating his beliefs and ideas, positioning himself as a creator and as a "student activist." On his own time, as well as for classes and pods, Maurice created at least 13 digital videos and 4 Web sites, including a social networking site where he aimed to "get people to be more open to new ideas, to redefine the 21st century." An artist-mentor reflected on the role of the DYN program in Maurice's development as a creator:

> "Just watching him kind of as a creator… the influences I think DYN kind of had on him in the idea of the eye of the individual has the ability to change society through media if one takes agency. I think him being a part of this group, he really gets a platform to use his mind in a way where kids aren't like, ugh, why do you think like that or… Because giving him the agency to not only speak his mind, but all right, how do we get this information to the community? Through video, through posters and radio shows."

Maurice's portfolio of work, similar to the Jappin' song and video, took on a life of its own within DYN. The DYN community came to see Maurice as a video artist, talented musician, and a leader. When other DYN students were asked who they admired or sought to emulate, Maurice was named by several of his peers. Adults in the DYN community often invited Maurice to represent the school. He spoke at a large school community event, attended conferences and events, appeared on radio broadcasts, and led a workshop for teachers interested in using online social networks in the classroom. These experiences positioned him as a model student in the DYN program.

The three phases of positioning that emerged during student production with the DYN program highlight the important roles of mentorship and the school community in student and project growth and development. Throughout these three stages, social issues and popular culture emerge as important tools mentors use to invite students to occupy, reject or renegotiate personas presented to them. Furthermore, the act of positioning as creative agents proves to be an iterative process based upon the cultivation, exchange, and re-articulation of ideas.

The cases discussed in this section of the symposium also illustrate the tendency that emerges wherein students learn several creative media and production skills through in- and after-school activities, and then take these learnings outside the realm of assignments. Students build off of each others' ideas and initiate creative projects on their own. Exchanging such boundary-crossing projects with mentors, teachers, and peers within the DYN community creates a culture of sharing that important to students' creative growth. The structures of the DYN program are designed to encourage students' creativity to spill over into their out-of-school experience, where students can develop sustainable creative practices.

Artists as Mentors and Teachers (Richards & Austin)

In year two (2007-2008), the Digital Youth Network (DYN) expanded to include professional development components as an intervention designed to create a DYN instructional model and framework. In addition to the after school and in-school programming, this professional development component resulted in the DYN artist-mentors needing to shift between in and out of school learning environments and structures. These structural variations between the after school, in school and professional development contexts affected the positioning of the artist-mentor to also include that of a teacher. In order to negotiate these various positionings within the DYN model, the DYN artist-mentor had to be willing and able to adapt and *shape-shift* identity and knowledge within these different networked spaces (Gee, 2004), related to artist, mentor and teacher stances. As a way to help to facilitate and support the mentors through this programmatic shift into the school day, a professional development component was added to the program to encourage artist-mentors to develop teacher or pedagogical stances within the school day space. Legitimate participation for the DYN artist-mentor in year three required that besides fulfilling the role of artist, the artist-mentor also had to become a teacher (Lave & Wenger, 1991). The *teacher stance* became a new identity and knowledge from which the artist-mentors had to negotiate along with the *artist stance* as they shifted between the in school and after school spaces. Out of this need to adapt shape-shifting stances to space and to become legitimate members within a community of practice, emerged tensions and struggles for specific artist-mentors. For some, the teacher stance would be an accepted transformation, while for others, the teacher stance was resisted. These moments of transformation and resistance were made visible in the professional development spaces where mentors became legitimate or marginalized members within the DYN community of practice (Wenger, 1998). Examination of the DYN learning environments and shape-shifting mentor stances can offer insights into 1) the relationship between the learning environments within in school and out of school spaces and how this influences interactions and positioning between mentor and student within the DYN program; and 2) how mentors negotiated and resisted these stances within a community of practice where pedagogical stance became mandatory for artist-mentors.

Evidence of the shape-shifting stance as well as resistance to these stances emerged from three years of ethnographic field notes and interviews of the artist-mentors using qualitative coding methods and discourse analysis of mentor interactions within the in school, after school and professional development spaces (Richards, 2005; Wells, 2006). Out of this study emerged preliminary findings that suggest that a major challenge for the DYN professional team was negotiating between shifting roles, identities and knowledge as artist-mentors had to interact with youth in different in school and after school contexts. The ability to shape-shift within different learning environments was linked to artist-mentor affinities to particular stances. Out of seven DYN artist-mentors, four are included in this paper. The following cases have emerged: 1) Artist-Mentor-Teacher: one mentor was able to negotiate and accept all three stances, 2) Mentor-Teacher: one mentor developed an affinity to the mentor-teacher stance, and 3) Artist-Mentor: two mentors developed an affinity to the artist-mentor stance.

To fulfill their duties the artist-mentors had to adapt and shift between the artist-mentor-teacher stances according to different learning environments. For example, the structural spaces between the DYN in-school and after-school components afforded different learning opportunities that impacted the stance taken by the artist-mentor. Classroom time was 50 minutes, whereas after school pod time was 90 minutes. Classrooms consisted of 30 students, whereas pods consisted of five to ten students. In-school classes required mandatory attendance, while pods were attended on a voluntary basis, and classroom pedagogy required grades and evidence of learning in contrast to pods, where evaluations were based on artifact production and role of critique from other members.

The in-school component gave more students access to DYN and new media literacy learning. However, in the classroom, artist-mentors had to encourage learning and participation from students that did not necessarily have an affinity to digital media. Additionally, there were up to 3-6 times more students within the classroom space, and the artist-mentors had about half the time that they were afforded within the after school context. Mentor-teacher stances were based on curricular goals rather than the artist-mentor stance that encouraged creative, youth-driven goals. The artist-mentors had to grapple with these shifting identities and knowledge as they designed and implemented the DYN curriculum and as they made decisions about the nature of their interactions with students.

Conclusion

The DYN program provides an initial model for supporting youth – specifically minority youth in an underserved inner-city area – to acquire 21st century skills and our research shows how this learning occurs in a broader ecological system. The four sections of this symposium will be a window into the initial findings of our three-year study that address multiple viewpoints on student learning. From a program design perspective, we will discuss the inspiration for and construction of this framework – the research and beliefs that informed it as well as the structure chosen to implement it. The section on our theoretical framework and related empirical methodology presents ways in which research can capture the varied contexts in students' lives, informing in greater depth our knowledge of how students develop new media literacies. From the angle of student creative

production, we show how students are positioned as creative and critical producers in activities that flow across formal and informal learning spaces. Finally, we present a view from the perspective of the DYN artist-mentors, and an iteration in program design that facilitated their movement between learning spaces in order to accompany youth more effectively across contexts.

References

Austin, Kimberly. (2008). "The Organization and Management of Informal and Formal Learning: Structure and language use in the Digital Youth Network model." Paper presented at the International Conferences on Learning Sciences: Amsterdam, Netherlands.

Barron, B. (2004). Learning ecologies for technological fluency: Gender and experience differences. Journal of Educational Computing Research, 31(1), 1-36.

Barron, B. (2006). Interest and self-sustained learning as catalysts of development: A learning ecologies perspective. *Human Development*, *49*, 193-224.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

Davies, B., & Harre , R. (1990). Positioning: The Discursive Production of Selves. *Journal for the Theory of Social Behavior* 20(1):43–63.

Dewey, J. (1913). *Interest and effort in education*. Cambridge, MA: The Riverside Press.

Gee,J.P. (2008). Situated Language and Learning:A Critique of Traditional Schooling.New York: Routledge.

Hargittai, E. & Walejko, G. (2008). The participation divide: Content creation and sharing in the digital age. Information, Communication and Society, 11(2), 239-256.

Harre,, R. & Van Langenhove, L. (1991). Varieties of Positioning. *Journal for the Theory of Social Behavior*, 21(4): 391–407.

Hidi, S. & Renninger, K. (2006). The four-phase model of interest development. *Educational psychologist*, *41*(2).

Holland, D. and Leander, K. (2004.) "Ethnographic Studies of Positioning and Subjectivity." In *ETHOS*, Vol. 32, Issue 2, 2004, pp. 127–139.

ISTE National Educational Technology Standards 2007. DOI= http://www.iste.org/inhouse/nets/cnets/index.html

Ito, M., Okabe, D., and Matsuda, M. (2005). Personal, Portable, Pedestrian: Mobile Phones in Japanese Life. MIT Press

Ito,M. (2005)."Technologies of the Childhood Imagination:Yugioh,Media Mixes and Everyday Cultural Production,"in Network/Netplay:Structures of Participation in Digital Culture,ed.J.Karaganis and N.Jeremijenko.Durham,NC:Duke University Press.

Ito,M. (2005). Personal,Portable,Pedestrian:Mobile Phones in Japanese Life.Cambridge,MA: MIT Press.

Ito, M., Horst, H., Bittanti, M., Boyd, D., Herr-Stephenson, B., Lange, P. G., Pascoe, C. J., & Robinson, L. (2008). *Living and learning with new media: Summary of findings from the Digital Youth Project*. Chicago, IL: The John D. and Catherine T. MacArthur Foundation Reports on Digital Media and Learning.

Jenkins, H. (2006). Confronting the Challenges of Participatory Culture: Media Education for the 21st Century. Occasional papers. Building the Field of Digital Media and Learning. John D. and Catherine T. MacArthur Foundation.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.

Levy, F. & Murnane, R.J. (2004), *The new division of labor: How computers are creating the next job market*. New York: Princeton University Press and Russell Sage Foundation.

Nasir, N. S., & Saxe, G. B. (2003). Ethnic and academic identities: A cultural practice perspective on emerging tensions and their management in the lives of minority students. *Educational Researcher, 32*(5), 14-18.

National Research Council (1999). *Being fluent with information technology*. Washington, DC: National Academy Press.

Neuman, S. & Roskos, K. (1993). Access to print for children of poverty: Differential effects of parent mediation and literacy-enriched play settings on environmental and functional print tasks. *American Educational Research Journal*, 30, 95-122.

Peppler K., & Kafai Y. (2007). From SuperGoo to Scratch: Exploring creative digital media production in informal learning. *Media, Learning, and* Technology, *32*(2), 149-66.

Pinkard, N., Barron, B., Martin, C., Rogers, M., & Gomez, K, Zywica, J. (2008). Digital youth network: Fusing school and after-school contexts to develop youth's new media literacies. Paper presented at AERA '08: American Educational Research Association Annual Meeting, New York, NY.

Prensky, M. (2001). Digital Natives, Digital Immigrants. *On the Horizon*. NCB University Press, 9(5), October.

Richards, L. (2005). *Handling Qualitative Data.* London: Sage.

Wells, G. (2006). Dialogue in the Classroom. *The Journal of the Learning Sciences*. 15(3), pp. 379-428.

Wenger, E. (1998). *Communities of practice*. Cambridge, UK: Cambridge University Press.

Acknowledgments