Working Title: **21st Century Skills and Pre-Service Teacher Education: The Power of Afterschool Community Placements**

Abstract: Developing 21st century skills in students is increasingly seen as a priority within education reform and as such should be central to pre-service teacher training. However, it is difficult to accomplish this in many of our current models. This study investigates the unconventional early field placements experiences of 53 pre-service teachers in an afterschool Community-Based Organization that had features we believed related to 21st century skills. Findings indicate that the alternative approach afforded opportunities for teachers to have experiences aligned with the priorities of 21st century skills frameworks including adaptability, collaboration, appreciation of diversity and cultural difference, and valuation of learning environments beyond school settings. Implications of this model for both teacher education as well as afterschool community-based organizations are discussed, as are future directions for research in this area.

*Introduction*

Reform-minded scholars regularly argue that education needs to “move beyond the basics” (Finn & Ravitch, 2007), acknowledging that what it means to be literate changes over time (Hannon, 2000, Author 2, 2011, 2013) and that “skills of the future” (Karoly & Panis, 2004) or “21st century skills” (Partnership for 21st Century Skills, 2003, 2006, 2009) must be incorporated into education systems in order to better prepare students for a changing world. Some advocates of this broad view suggest that many out of school environments support forms of learning that support such skills (Ito et al., 2013; Jenkins et al., 2009), and that such contexts are more keyed to the future of civic engagement and professional life than contemporary formal schools (Gee, 2003; Thomas & Brown, 2011). And while there is no fully agreed upon definition of 21st century learning or skills, a number of similar frameworks articulate what they see as missing from current educational contexts and serve as a common starting point for such discussions (Dede, 2010; Voogt & Roblin, 2010).

The general argument for the range of skills advocated by these frameworks can be broadly stated in this way: There is a need for more complex conceptions of learning and teaching due to shifts in 21st century society and work places. These shifts, ongoing and often unpredictable, mean that children will increasingly need to engage in a range of competencies not currently emphasized in schools. These competencies include things like collaboration, adaptability and agile thinking, life-long learning, and embracing and leveraging diversity. Applying this rationale to the domain of teacher education, we argue that future educators must be prepared to support children for these new competencies, and that new methods of teacher preparation must be designed to this purpose.

To date, teacher education efforts that utilize non-classroom field placements have found that they hold potential to support educator learning related to various aspects of 21st century frameworks. For example, it’s been shown that community-based cultural immersions have supported greater appreciation of diversity issues (Gimbert, Desai & Kerka, 2010; Zeichner & Melnick, 1996). Placements in museums have supported pre-service teacher competency in inquiry-based (Wilson et al., 2011) and “hands-on” teaching and learning (Jung & Tonso, 2006). And most relevant to the study at hand, Learning Scientists have explored the development of extensive university-community partnerships in community-based organizations (CBOs) and found that they can be effectively leveraged to provide pre-service teachers with opportunities to deepen conceptions of how learning occurs (Gutiérrez & Vossoughi, 2010; Jurow et al., 2012), give important contrasts to classroom-based field experiences (Galeggo, 2001) and orient educators to issues of broadening participation and interest in technology and design (Author 1, 2008; Author 1, 2009) .

Our study seeks to expand what is known in particular about such pre-service field experiences in afterschool CBOs specifically in terms of their relationship to 21st century skills. Our approach extends some of the core aspects of the university-community partnership models mentioned above to develop a less resource intensive and thus more scalable model that can be generally applied to afterschool CBO’s. In our study, we examine this approach in terms of its relationship to 21st century skills as articulated by the Partnership for 21st Century Skills (2003, 2006, 2009) focusing specifically on pre-service teacher experience within four priorities of this framework that we hypothesize such environments support: (1) collaboration, (2) adaptability, (3) appreciation of diversity and cultural difference, and (4) general understanding that community contexts can support learning.

We analyze 159 journal entries written by 53 pre-service teachers each enrolled in one of three separate semesters of an undergraduate seminar in educational psychology. During this course, each pre-service teacher engaged in weekly field experiences at a local Boys and Girls Club (Hirsch, 2005) for a total of 20 hours, which their journal entries document and reflect on. Such a data source, previously used in similar studies (Gutiérrez & Vossoughi, 2010; Jurow et al., 2012), allows us to “consider how the students participated at their sites, what they noticed, and how they interpreted the events and interactions they observed […] and give insight into students’ historically developed perspectives and values” (Jurow et al., 2012, p.151). Participants were unaware of the specific research goals or the 21st Century Skills framework, and engaged in open-ended self-reflective journal writing. We used these writings as data to inform the current study on the nature of collaborative roles that the space afforded and how pre-service educators adapted to such roles (i.e., collaboration and adaptability), how they experienced issues of race and class (i.e., gaining an appreciation of diversity and cultural difference), and the ways they related to the club as a learning environment. Results suggest that the afterschool community-based placements supported pre-service teacher experiences that align with a range of valued competencies found within 21st century skill frameworks, pointing to the importance of further exploration of such spaces in pre-service teacher education models.

**The Changing Demands of the 21st Century**

While there is no singular definition of 21st century learning or skills, numerous frameworks have been offered that have similarities across them (c.f., Dede, 2005; Metiri Group & NCREL, 2003; Partnership for 21st Century Skills, 2003, 2006, 2009). Dede (2010) notes a number of common themes and foundations of such frameworks, including an acknowledgement of shifting labor conditions, the advancement of new technologies and the simultaneous relevance of both new skills as well as “perennial” ones that have been around for centuries, which can have newfound importance in the current social and cultural landscape.

Such skills frameworks mentioned above have a strong relationship to broader research on new learning environments and social structures that have emerged in the 21st century, including online participatory cultures (Jenkins et al., 2006), passionate affinity groups (Gee & Hayes, 2010), and interest-driven learning spaces (Ito, et al. 2009). While there are nuanced differences between them, all of these scholars look at out of school learning environments that embody three core qualities that relate to the 21st century skills frameworks: collaborative, social, peer-to-peer learning characterized by collaboration and adaptability of roles (Author 1, 2008; Gee & Hayes, 2010); self organized, informal and interest driven learning that occurs in a range of contexts, not just school (Ito, et al. 2009); low barriers to entry and participation by all is valued, regardless of racial or cultural background (Jenkins et al., 2009). Environments with these features, they argue, better prepare youth for a constantly changing world (Thomas & Brown, 2011) than ones characterized by more narrow, individualistic notions of learning.

However, exactly how to connect the potential of these spaces to the context of pre-service teacher preparation has not always been clear. In our work, we hypothesized that the new learning environments characterized by Jenkins, Gee, Ito, Thomas & Brown and others share some overlapping characteristics with afterschool community-based learning environments. In particular, we saw that these new learning environments and afterschool CBO spaces were both oriented towards particular subsets of the 21st century skills framework, specifically the focus on collaboration, adaptability, appreciation of diversity and supportive of understandings of learning as something not just happening in school (Partnership for 21st Century Skills, 2009). We saw the possibility of afterschool CBO’s as both logistically and theoretically viable spaces for cultivating such values within the context of pre-service teacher education.

**Pre-service Field Placements in Community Contexts**

Given that 99% of all teacher education programs in the United States require some sort of early field experiences prior to student teaching (Guyton & McIntyre, 1990), it is no surprise that intentionally structured field placements have received much attention from both the scholarly community. These field placements have an acknowledged role in bridging the gap between theory and practice (Allsopp et al., 2006), increasing familiarity with school culture and individual pedagogical interests and abilities (Kosnik & Beck, 2003) and development of teacher self-efficacy (Parkison, 2007), amongst other things. As such, the specific structure and organization of these experiences is of central importance to teacher education.

Increasingly, alternative field placements are moving beyond the traditional single classroom approach to include a diverse range of experiences. These include extended cultural immersion both domestically (Mahan, 1982) and internationally (Mahan & Stachowski, 1990; Pence & Macgillivray, 2008), community oriented placements in urban settings that differ from the more privileged backgrounds of most pre-service teachers (Gimbert, Desai & Kerka, 2010; Zeichner & Melnick, 1996), and, in some cases, placements in informal learning environments within community contexts.

Most of this prior research on field placements in community contexts has focused on museum settings, particularly in pre-service science education. This approach has been substantiated by several studies that show the benefits of utilizing museums during pre-service education, including exposing pre-service teachers to “hands on teaching and learning” (Jung & Tonso, 2006, p. 22), a greater likelihood of leveraging informal environments like museums in their future teaching (Olson, Cox-Peterson & McComas, 2001), and greater use of inquiry-based, non-didactic pedagogical methods (Wilson et al., 2011). Other domains, including the arts, also have similarly conducted experiments with pre-service teacher education in museum settings (Kuster, 2008; Stone, 1996).

While field placements that utilize community contexts that are even less formal than museums, notably those of afterschool CBOs, are fewer, they tend to approach the work from a sociocultural learning perspective that aligns well with the priorities of 21st century skill frameworks. Notable work in this arena has also been led by Kris Gutiérrez (Gutiérrez & Vossoughi, 2009) and Margaret Gallego (Gallego, 2001) in their initiatives placing classes of pre-service teachers in the after-school Fifth Dimension (5D) learning environment, an approach that has served as a model for other learning scientists engaged in pre-service teacher education (Jurow et al., 2012). The 5D is a program that partners afterschool CBOs with local universities, designed based on the principles of cultural-historical psychology (Cole, 1996). In this model, youth from underserved populations have access to a well-resourced informal learning environment that includes undergraduate mentors from University classes. Mentors come from an array of liberal arts, science, and education majors. 5D spaces are organized heavily around play and literacy oriented activities, specifically leveraging digital and physical board games that afford rich learning interactions between mentors and youth.

These studies as well as a prior study of undergraduate mentors within the Computer Clubhouse Network (Author 1, 2009) validate that notion that informal learning spaces, particularly those oriented around new technology and design activities, can support a shift from top-down models of learning to ones of bottom-up and co-learning (Author 1, 2008). These non-traditional learning dynamics are important in today’s society where existing social relationships and hierarchies are frequently called into question and role adaptability is greatly prized.

We argue that afterschool CBOs, such as Boys and Girls Clubs, can also exhibit and support many of these same qualities as well as immerse pre-service teachers in experiences aligned with the priorities of 21st century skills frameworks. The key contributions of our work to this conversation are three-fold. The first, oriented more towards implementation, is that our model differs from similar prior efforts in that we propose easily scalable field placements at existing afterschool CBOs not run by University staff, such as the network of Boys and Girls Clubs that has a national presence across urban and rural communities within the United States. The second is that while many prior efforts have documented outcomes associated with afterschool CBOs that are in line with 21st Century Skill frameworks, ours explicitly maps aspects of the framework onto our analysis. Finally, the analytic approach we take documents not only that certain outcomes occurred that aligned with 21st century skill frameworks, but the extent to which they occurred across participants in the study.

# Research Questions

Our core questions aimed to understand the ways that participation in an afterschool community-based organization could provide pre-service teachers with experiences that aligned with priorities of the Partnership for 21st Century Skills framework (2003, 2006, 2009), specifically in terms of (1) collaboration, (2) adaptability, (3) appreciation of diversity and cultural difference, and (4) general understanding that out of school community contexts can support learning.

In particular, we aimed to answer three questions: (1) How and to what extent were pre-service teachers able to engage in roles characterized by collaboration and adapt across a range of such roles? (2) How did these pre-service teachers relate to the non-dominant youth members of the Boys and Girls Club and to what extent did they come to appreciate diversity and cultural difference? (3) How did pre-service teachers relate to the Boys and Girls Club as a learning environment and to what extent did they gain an understanding that out of school contexts can support learning?

# Methodology

**Field Placement Overview**

## Our study was conducted in a Boys and Girls Club located in a mid-sized city in the Midwestern United States. The Club aims to provide a safe space, adult mentors and ongoing youth programming in areas such as sports, arts and technology. Around 180 youth attended the Club on a daily basis (with a total membership of ~1,000 youth) at the time of this investigation and were fairly evenly divided in terms of gender (52% Male and 48% Female). Ethnically, the group was 57% Caucasian, 22% African-American and 21% Multi-ethnic, with the majority of participants across ethnicities coming from low- to lower-middle-class backgrounds. 80% of the members were unable to afford the $20/year membership fee. 52% were 5-9 years of age, 38% were 10-12 years of age and 10% were teens.

## In general, the Club contained a variety of spaces that were most often unstructured and youth-driven where adult mentors were present but did not highly structure the space. The capacity of the Club to have ongoing mentorship for the youth was often contingent on the involvement of volunteer mentors. Seeing an opportunity to meet both a community need and at the same time provide potentially valuable experience to students at the local university, we formed a relationship with the Club in which pre-service teachers enrolled in a required undergraduate educational psychology course taught by the first author would participate in their first field placement at the Club. This was in contrast to how other professors at the university had taught this course, in which the field placement took place in classroom settings.

## Participants

## All participants were pre-service teachers enrolled in an undergraduate seminar in general educational psychology with an associated field internship. The content of the class focused on learning theory, while the field placement took place for two hours each week (a total of 20 hours throughout the semester). The participant sample was limited to pre-service teachers specifically majoring in Art Education, Music Education or Physical Education, which we note is a limitation in terms of the generalizability of the sample.

53 pre-service teachers, all either freshman or sophomores, participated during one of three semesters of the course offered between Spring 2008 and Fall 2009. They had limited exposure to both field experiences as well as educational coursework at the time of the study**.** The group was 60% female and 40% male. Participation in the course was required as part of the education major. All references to specific participants in this study are pseudonyms.

# Data Sources & Analytical Techniques

We analyzed a total of 159 journal entries sampled equally from across all of the participating pre-service teachers. The entries had a loose ethnographic style that the pre-service teachers were asked to adhere to, which included detailing their interactions and writing personal reflections on these interactions and their overall experience in the Club. The course instructors did not evaluate the entries as to whether or not they contained particular reflections, which would have had implications in terms of the validity of the journaling to be used as data. Rather, instructor feedback focused on the depth of description and reflection on the experiences the participants had in the field to help pre-service educators deepen their reflection on their own practice. While the context of the journal entries as assignments in an education course naturally must be taken into account when considering this data source and we acknowledge that their position as the sole data source for this study is a limitation in its own right, we believe participants’ writings were not unduly influenced to come to any particular conclusion about their experience in the Club.

Participants submitted between six and twelve journal entries, each between three to five pages in length, per semester, with a small percentage being collaboratively written. Given the challenges involved in parsing which pre-service teacher voice was active in different parts of these collaboratively written entries, these notes were excluded from the analysis. The data presented in this study is the result of analyzing three journal entries from each pre-service teacher— their initial, mid-point, and final entries (N = 159 entries).

Analysis of journal entries was approached based on developing qualitative coding schemes (Saldaña, 2012) derived from relevant themes in the literature detailed in the background section, and then quantifying codes in order to understand the extent to which certain categories appeared in the date (Chi, 1997).

The first set of codes dealt with the roles pre-service teachers enacted, adapted from Author 1 (2008). These codes included “top down” positioning, such as when a pre-service teacher engaged in traditional instructional behavior, “bottom up” roles when the pre-service teacher was being taught or was otherwise positioned as a learner in relation to youth, and two roles in between those two ends of the spectrum, “co-play” and “co-construction” roles. We chose to focus on these codes because of the significance of adaptability, collaboration and role fluidity that has been identified on literature on 21st century learning (Gee & Hayes, 2010, Partnership for 21st Century Skills, 2009).

In the second coding category, we noted instances where pre-service teachers wrote reflections on issues relating to race and class based on experiences at the Club, such as instances where they believed they observed some sort of racism or noticing the ways that youth from various ethnic backgrounds interacted. We also noted any instances of coded language that could be related to deficit understandings of non-dominant youth. These included instances that revealed assumptions pre-service teachers held such as stating that youth come to the Club to escape a “hectic lifestyle” at home. The last sub-code in this category captured instances where pre-service teachers actively discussed valuing the development of personal relationships with the diverse young people that they spent time with at the Club. This set of codes is based on literature on 21st century learning that stresses the importance of low barriers to entry for all regardless of background (Jenkins et al., 2006) and the Partnership for 21st Century Skill framework’s focus on learning from and with individuals from diverse cultures (2009).

The final set of codes focused on pre-service teacher understandings of and relationships to the Club as a learning environment and their personal experience within that space. This included three specific sub-codes: positive and negative valuations of the Club and/or mentoring experiences, and instances of recognizing learning as occurring. Instances when pre-service teachers displayed positive valuation of the Club as a learning environment or the mentor experience gave us insight into what they valued within the space, included general statements like “I wish I had spent time at a place like this when I was a kid”, as well as observations of positive attributes of the environment such as “[t]he room seemed like a welcoming place where learning could take place”. Instances of negative valuation of the Club and/or mentoring experience gave us a window into their frustrations, critiques and challenges. Between these two codes, we were able to garner an important mental model of the pre-service teachers’ conceptions of the Club as a learning environment. Augmenting that more explicitly were moments where pre-service teachers actively noted moments of learning, which included cases where pre-service teachers documenting youth skill development while playing sports, or the kind of thinking exhibited through online gameplay. These codes were particularly important to our investigation because they provided evidence of what pre-service teachers “counted” as learning, if anything, within the context of an afterschool CBO, an outcome important within the P21 framework in terms of teachers understanding the value of “community resources beyond the school walls” (Partnership for 21st Century Skills, 2009, p.8).

The second author primarily coded all passages and an outside rater was used to establish inter-rater reliability on 30% of the data set. Inter-rater reliability for these codes was calculated at 88%.

# Findings

**Collaboration, Adaptability, and Role Fluidity**

While at the Boys and Girls Club, pre-service teachers enacted a range of roles, showing the capacity of the environment to provide opportunities for adaptability and fluidity in roles, especially those related to collaboration.

## Experiences of pre-service teachers at the Club ranged from delivering instruction and giving advice to actively learning from the youth in the space. We coded for instances of “top-down” roles, such as when a pre-service teacher engaged in traditional instructional, authoritative and pedagogical behavior, “bottom-up” roles when the pre-service teacher was being taught or was otherwise positioned as a learner in relation to youth, and two roles in between those two ends of the spectrum; “co-play”, characterized by intergenerational play and experimentation, and “co-construction”, characterized by collaborative construction of ideas, artifacts, media and designed experiences. These final three roles – “bottom-up” learning, “co-play” and “co-construction” – are ones that characterize collaborative (and not top-down) kinds of relations between educators and youth.

## We analyzed each subject in terms of role engagement (see Table 1 for summary), finding that each pre-service teacher, on average, engaged in three of these four roles, with 96% (N = 51) of all pre-service teachers engaging in top-down roles, 62% (N = 33) engaged in “bottom-up” or learner roles, 94% (N = 50) engaging in co-play roles, and 45% (N = 24) engaged in co-construction roles. And while the vast majority did engage in top down roles, of the 660 instances we coded of role engagement across the data corpus, only 47% of these instances were of top-down roles, with the remaining 53% were made up of roles where the pre-service teacher was in a collaborative, non-traditional power relation with young people. With less than half of the roles enacted being top-down, we see this as likely a dramatic contrast to the roles that pre-service teachers have the opportunity to engage in when in traditional classroom placements and points to the Club’s ability to support pre-service teachers in engaging with alternative models of educator behavior that might be otherwise unavailable to them.

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| **Adaptability and Collaboration within the Boys and Girls Club** | |
| *a. Adaptability in role taking (i.e., role fluidity)* | |
| 3 | Average number of **roles that participants engaged in** (of 4 – top-down, co-play, co-construction, learner). |
| 96% (N = 51) | Participants that engaged in **top-down roles** |
| 94% (N = 50) | Participants that engaged in **co-play roles (collaborative)** |
| 62% (N = 33) | Participants that engaged in **co-construction roles (collaborative)** |
| 45% (N = 24) | Participants that engaged in **learner roles (collaborative)** |
| *b. Parity between traditional and non-traditional collaborative pedagogical roles* | |
| 47% (N=310) | Instances of participants engaging in **top down roles** |
| 53% (N=350) | Instances of participants engaging in **collaborative** **roles characterized by non-traditional power dynamics** (co-play, co-construction, learner) |

*Table 1 - Adaptability and Collaboration within the Boys and Girls Club*

## Furthermore, pre-service teachers were able to be adaptable and move between these roles to best fit the needs of the learning environment at any time. The fluidity of roles was often seen within the journal entries, such as in the following case where one pre-service teacher notes the importance of role fluidity and adaptability to her future work as a teacher:

## I loved trying to learn new games from the kids. They like to teach other people and help you when you do not understand. I think that it will be important for me to at times take the role of the "learner." I am aware that kids often unintentionally teach adults important lessons; however, there will be times when I need to teach them. During the instance where the girl's block was stolen, I taught the boy that he should not take what is not his, but the girl taught me that it is more important to share. There were other instances in which I was the learner when the kids were trying to teach me how to play the games that they had (Tina, 2008, journal entry #1).

She pointed to enjoying being in the learner role when she spoke of how she “loved” learning new games from kids, yet also maintained the importance of the teacher role. This kind of active reflection on the nature of varied roles was admittedly not widespread, but points to the potential for informal learning spaces to not only allow for teachers in training to be contextually adaptive, a central 21st century skill, but to see that they are doing so and incorporate such adaptability into their identities as educators.

## Appreciation of Diversity and Cultural Difference

As mentioned earlier, Club members came from diverse backgrounds. While we lack fine-grained demographic data on the pre-service educators in this study aside from a gender breakdown (40% male, 60% female), a large majority were white and of middle to high socioeconomic status, similar to the demographics of most pre-service teachers across the country. This cultural divide presents some inherent challenges as we prepare teachers to work with diverse populations of youth, something that in the 21st Century Skills framework they are meant to themselves foster as a competency in youth (2009).

Keeping in mind research showing that pre-service teachers often engage in deficit thinking with regards to children from non-dominant backgrounds (Ladson-Billings, 1994; Parish & Aquila, 1996; Schultz et al., 1996), we recorded any instances where participants used indexical language that might evidence naïve and sometimes negative cultural assumptions when it came to issues of race and class. We found that just 24% of the pre-service teachers used such deficit-oriented language. And most of the instances in this category was of a very specific variety - over 75% of these instances evidenced assumptions that pre-service teachers held in terms of the risks associated with living in poverty, such as this reflection from a pre-service teacher named James:

I know that many of the children that come to this Club are from low income families and may have some problems at home.  I am very proud to know that I can be there to help […].  It is not often that children in these kinds of situations have someone to look up to […] (James, 2008, Journal entry #1).

James here links coming from “low income families” to “problems at home”, a clear assessment of the quality of home lives for those living in poverty. This theme of assuming a lack of role models, evidenced when James said that children “in these kinds of situations” may not “have someone to look up to” was not uncommon in this category, and was often paired with an earnest, if unintentionally condescending, desire to “help”. It was similarly evident in this excerpt from a female pre-service teacher named Chelsea:

I felt bad for many members and wanted to do more for them.  There are rules against us mentors helping them out more than what we are asked to do. Although some of these children may be disrespectful and disobedient, I feel that they can still be helped and their lives can be shaped.  They are at young ages and all they need is guidance and someone to help them show them right from wrong (Chelsea, 2008, Journal entry #1).

Chelsea’s statement that “all they need is guidance” and a person to “show them right from wrong” implies an assumption that these youth are not exposed to these supports in other places in their lives – an implicit judgment that their families, communities and cultures are not preparing them well for the world.

While this type of thinking is problematic on many levels, we were able to see a dramatic decrease in these sorts of statements in later journal entries. Indeed, 75% of the instances coded in this category were found in the *initial* journal entries written by the pre-service teachers. In later entries, not only were these sorts of reflections far less frequent, they also had a somewhat different character, such as in this reflection by a pre-service teacher named Travis:

Jayden is such a great kid.  He’s so funny and easy to talk to.  […] I constantly think about what some of these kids’ family is [sic] like […]  I mean you can’t judge someone’s parents based on their child.  In today’s world, there’s no telling what the situation at home is like.  Mom could be working 2 jobs to feed everyone and pay the bills, and the dad isn’t around, so the kids have to take care of themselves.  Just because Mom isn’t home all of the time because she’s working doesn’t mean that she’s not trying her hardest to give the kids everything they need to succeed in life." – Travis, 2008, Journal entry #9

Travis clearly sees Jayden in a positive light, calling him a “great kid”, with positive attributes such as a sense of humor (“funny”) and strong social skills (“easy to talk to”). He also, importantly, reflects on Jayden’s home life in a nuanced way, acknowledging potential challenges associated with economic hardship such as “kids [that] have to take care of themselves”, frames these challenges in terms of structural issues (a single mother not being home because she is working multiple jobs) and in the last sentence assumes good faith in that caregivers are likely making every effort possible to well resource their children. Travis even actively states that it isn’t possible to “judge someone’s parents based on their child”, a subtle but notable shift from earlier instances in this category that contained more implicit judgments of family and culture.

We also see in both the cases of these pre-service educators, James and Chelsea, the development of more nuanced thinking in these areas in later journal entries despite initially struggled with their own preconceptions and cultural centricities around issues of race and class. In later journal entries, for example, Chelsea makes the observation that “there is not that much diversity amongst the adults” and “wonder[s] if it has an affect on the relationships formed between the kids and the adults”, implicitly pointing to broader challenges of lack of cultural diversity among educators of non-dominant youth, a problem well documented by scholars of teacher education (Easter et al., 1991; Sleeter, 2001).

James, in his final journal entry, extensively details an altercation between a black and white youth wherein the white youth went to James to mediate, but James, not knowing the kids well, recommended that he talk to a Club staff member, Kyle, who happened to be black. When the youth told him that the Club staffer “wouldn’t care about it”, James wonders if “this event could be understood to show subtle racism because the white student didn’t want to tell Kyle because Kyle is also black and would stick up for the black student instead of him.” Regardless of the actual situation at hand, we see here that James is thinking is far more nuanced ways about issues of race than in his earlier reflections.

Additional data offers a possible explanation for this decline in at-risk and deficit thinking in relation to non-dominant youth - the common experience among participants of forming positive relationships with youth at the Club. A majority of the participants, 74% (N = 39) reflected on the value they placed on developing relationships with the youth at the Club within their journal entries. While we lack clear comparative data within this study on adult-youth relationship development in field experiences in formal learning environments, it is fair to say that a common experience in classroom-based field placements is remediation for struggling learners, a relationship which can instill or reinforce a deficit model of non-dominant populations. In the Club, pre-service teachers most often developed relationships in contexts where youths’ assets, such as creativity and playfulness, were predominant.

More broadly, we also saw that almost half (45%, N = 24) of all pre-service teachers were able to draw on their experiences at the Club to reflect in positive ways about the cultural and economic backgrounds of these youth. See table 2, below, for a summary of quantitative findings in this coding theme.

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| **Pre-service Teacher Views on Race and Class** | |
| *a. Use of indexical language related to naïve and/or deficit views on race and class* | |
| 24% (N=13) | Participants that used indexical language related to naïve and/or deficit views on race and class. |
| 75% | Percentage of **naïve and/or deficit views on race/class** that related to assumptions held about terms of the **risks associated with living in poverty.** |
| 75% | Percentage of **naïve and/or deficit views on race/class** on race/class that were found in participants’ **initial journal entry**. |
| 25% | Percentage of **naïve and/or deficit views on race/class** on race/class that were found in participants’ **mid-point and/or final journal entry.** |
| *b. Reflections on positive relationship development and race and class* | |
| 74% (N = 39) | Participants that reflected on the value they placed on developing relationships with the youth at the Club. |
| 45% (N = 24) | Participants that reflected in positive ways about cultural and economic backgrounds youth. |

*Table 2. Pre-service teacher views on race and class.*

While existing research on multicultural education shows that field experiences alone are unlikely to be able to prepare teachers for diverse teaching contexts (Sleeter, 2001), placements such as the one described here have the potential to play an important role within larger initiatives addressing these issues while at the same time helping pre-service teachers come to value diverse cultural and class backgrounds, an important competency in the 21st Century Skills framework (2009).

# Valuation of Afterschool CBOs as Learning Environments

Our data supported the hypothesis that through spending time in afterschool community based organizations pre-service teachers would come to see the value of such learning environments that exist “beyond the school walls” (Partnership for 21st Century Skills, 2009, p.8), especially ones that support collaborative and self-initiated learning. One thing that was surprising, however, was that coming to this understanding proved to require an experience of flexibility and adaptation on the part of pre-service teachers, a finding we will discuss further on in this section.

## “Ultimately they are all learning together.” Communal, collaborative and peer-to-peer learning are common in the Boys and Girls Club, and some pre-service teachers we worked with came to see that those forms of learning take place naturally when youth are put together. Our codes on positive valuation of the Club and/or the mentor experience allowed us to see these connections, with the majority of the pre-service teachers in the study, 62%, actively reflected on the positive value of the Boys and Girls Club learning space and/or their experience of being a mentor. We explore data found in this category qualitatively through excerpts below.

Coming from traditional classroom spaces, it can be challenging for teachers in training to see how learning might occur in non-traditional spaces. Fifth Dimension projects we mentioned earlier that placed pre-service teachers in afterschool CBOs found that the spaces provided an opportunity to expand what pre-service teachers notions where of *how* learning happened (Gutiérrez & Vossoughi, 2009), our data support the idea that experience in afterschool CBOs can help expand pre-service teachers understandings of *where* learning happens. In the quote below, one participant makes linkages to other informal learning spaces she’s familiar with:

In a way, I think the Club is like the samba schools [in Brazil] in that they do not have teachers among everyone. All the kids teach each other and help each other when it comes to homework, sports, or anything. They all come to the Club for different reasons, but ultimately they are all learning together (Hilly, 2008, journal entry #1).

This pre-service teacher refers to how “kids teach each other and help each other” and that “they are all learning together”, an acknowledgement that these young people are in fact capable of resourcing each other in their learning. On other occasions, pre-service teachers opted to support a communal learning approach, rather that simply engaging in instruction themselves:

I said, “Well Daniel, what game are you playing?” He said, “SimsTower, but I cannot do it.” I said, “Well, do you need some help?” He slightly shook his head up and down. I said, “Well those two boys on the end are playing the same game, why don’t you ask them for help?” […] Daniel then got up and asked the boys for help, and they both came over to his computer to show him how to play the game (Pattie, 2009, journal entry #1).

In linking up a novice with experts, this pre-service teacher actively oriented youth in the space towards peer-to-peer learning and collaboration, both central to 21st century skills frameworks. Seeing a young person struggling with how to accomplish something, she didn’t default into an instructional role herself, but rather sought out other young people in the space that are more competent (“why don’t you ask them for help?”).

The Club in many ways provided pre-service teachers an opportunity to observe and reflect on young people in their natural state of play, such is an in this excerpt by a female pre-service teacher:

I caught myself paying a lot more attention to their activities that take place all around the [C]lub. […] I was paying attention to what kids were doing together, and how they interact with different people. The Club feels much more like a learning environment to me this time, instead of a fun play place (Tina, 2008, journal entry #1).

Tina here implicitly acknowledged that “what kids were doing together”—the common activities of the Club—were part and parcel of its value as a robust context for learning as well as noting that this represented a change in her understanding of the environment. By giving active attention to and having opportunity to reflect on the range of activities that kids participate in at the Club, her conception of the space moved from “a fun play place” to “a learning environment”.

## Adapting to informal learning: perceiving “Controlled Chaos”. While a majority of the pre-service teachers in the study came to value the kind of learning environment that the Club provided, some (26%) actively had challenges, frustrations and critiques; many of which were related to adapting to a learning environment that was foreign to them in many ways. This is probably due to the initial disconnect pre-service teachers had when connecting their K-12 experience to this new, informal learning experience. Our coding category covering negative valuation of the Boys and Girls Club and/or mentor experience served as the basis for our analysis in this area.

We found that a large portion of these challenging instances happened early on their time at the Club (41%), with the proportion decreasing when we looked at the final journal entries (36%), indicating an evolution from initial discomfort and overwhelm to a later ability to see patterns of organization and learning within the “controlled chaos” of youth activity. This is indicative of the need for pre-service teachers to have experiences such as this to rid them of the expectation that learning can only happen within rigidly organized contexts. A good example of an early experience of discomfort comes from this pre-service teacher:

The first experience at the Club was kind of awkward because you really don’t know what to expect […]. I was intimidated by the kids some what because they out numbered me by so much and this was their domain, which I also had no idea about how it worked or what to do (Stephanie, 2008, journal entry #1).

This kind of observation was typical of the excerpts coded in this category. In referring to “their domain” Stephanie acknowledged her own lack of familiarity with this type of environment, a common stance that explains to some degree why we saw a greater proportion of instances in this category early on in the pre-service teachers’ experiences. To us this suggests that many were simply getting used to a space that did not fit their typical conceptions of what counts as a learning environment.

We did, however, see development beyond these initial sorts of growing pains. A common occurrence in the early journal entries was the recurring description of the Club as “chaotic” (27 instances), with this trend greatly declining when we looked at the final set of journal entries, where we found almost half as many (15) mentions of variations on this theme of “chaos.”

These final journal entries tended to indicate how they came to see the space as embodying a sort of “controlled chaos”, as one participant put it, that supported youth learning through a balance between structure and agency. This shift from initially seeing chaos to seeing the underlying organization and value behind it is significant from the perspective of 21st century skills in that these pre-service teachers’ notions of learning as orderly, “safe” and controlled were not only challenged by their experiences in the Club, but also shifted to include the kind of self-directed and sometimes inchoate learning present in many afterschool CBOs and informal learning environments more broadly.

Observations such as these are important as they can lead to expanded notions in pre-service teachers of what counts as a learning environment to ones that include spaces characterized by 21st century learning practices and to potentially, when in the role of teachers, consider and reflect on these spaces when they conceive of both where and how children learn and what their teaching should look like as a result.

## Recognizing interest-driven learning: “She learned as she went”. Another important trend, though somewhat less prominent, was the act of identifying instances of interest-driven learning on the part of pre-service teachers. 26% of the study participants actively identified learning as it occurred within the Club and, at times, connect these instances to theories of learning and development. This typically occurred during exploration of a technology or other areas of creative practice that the Club environment afforded. In the instance below, a female pre-service teacher is engaging with a young person using an animation program in the computer lab:

He began with a normal looking stick figure, and then the children are able to manipulate the figure in many ways to create any type of show they wish.  Clay would move the figures arms and legs, he would make the figure bigger or smaller, and he can even add items in…Clay made figures fighting each other and he added in wonderful details.  Even though it was a little rough, when one of the figures would hit the floor, Clay would make the head bounce as it hit the floor.  Weird maybe, but I think it is a great way to see that he is thinking of all the details (Hilly, 2008, journal entry #1).

Her comment that he was “thinking of all the details” is evidence that she viewed this as more than a frivolous activity and that something of value was taking place from the perspective of learning. Use of language such as “even”, “wonderful” and “great” underscore her positive valuation of this activity. Important here is that she was able to recognize and value the development of technological expertise in a young person occurring without any intentional instructional structures surrounding them. Similar interactions occurred with video games that the kids would play, with pre-service teachers being impressed at the strategic and critical thinking required to engage with these technologies, and often noting with surprise the high levels of skill that youth at the Club exhibited when playing.

On occasion, we saw pre-service teachers connecting the kind of informal learning they were identifying at the Club with the learning theories they were encountering in the course’s formal content, as in this excerpt from a female pre-service teacher:

Later on though Keisha started mixing more colors and got excited about making different colors of green depending on how much yellow or blue she would add. [O.C.: I could tell she didn’t have much experience with mixing paint before, but it was exciting to see her try things out and learn as she went... this was a good example of the learning-by-doing part of constructionism] (Celia, 2009, journal entry #6).

In this example of connecting theory to practice with her reference to Constructionism (Papert, 1993), the pre-service teacher not only acknowledges that learning is happening but utilizes an explanatory framework around that learning that acknowledges the ability of youth to “try things out” and “learn as she [goes]” within the context of a self-directed, informal learning environment. This type of connection can be difficult for professionals of any level. It is particularly important for pre-service teachers to be able to name and connect to theory in their practice given that this is their first field experience, as well as their first exposure to theories of learning and development.

## Significance of the Study

Findings in the study suggest that field placements in afterschool CBOs provide rich opportunities for pre-service teachers to have experiences aligned with a variety of priorities found in the Partnership for 21st Century Skills framework (2003, 2006, 2009). Opportunities to engage in a range of roles, most of which weren’t top down and included many collaborative relationships with children, maps to the priorities of *adaptability* and *collaboration*. This priority of *adaptability* is also supported by the trend around perceptions of the afterschool CBO as “chaotic” markedly decreasing over the course of participant journal entries. The priority of *appreciation of diversity and difference* is supported by the finding that deficit views on race/class declined over the course of journal entries, the majority of participants reflecting on positive relationship development with youth at the club and almost 50% reflecting positively about the racial/cultural backgrounds of youth. Finally, our findings that participants positively reflected on their experience as mentors and of the Club as a learning environment support the idea that field experiences in these spaces *support understandings that community contexts beyond school walls can support learning,* a valued outcome for educators in the P21 framework. We believe that these findings have significance for both afterschool CBOs globally, as well as the broader field of teacher education.

Afterschool CBOs in particular stand to benefit from the model proposed here. These spaces often have limited human resources and even less so in recent years of severe budget cuts, and regular field placements by schools of education would serve to ensure that many would benefit from having mentors at hand that could serve as more capable others. This could be an important reciprocal community relationship and, as this study showed, the pre-service teachers in those spaces would garner important benefits and increase their understanding of how after-school environments can complement those found during the school day.

Broader adoption also holds important potential for the field of teacher education. Not only does it represent an approach to teacher education that meets existing community needs and has unique affordances with regards to the outcomes of spending time in those spaces, it is also scalable from a policy and program perspective. There are many thousands of community centers in the form of Boys & Girls Clubs, Neighborhood Network community centers, 4-H Clubs and Computer Clubhouses nationally within the United States, more than enough to service schools of education located in urban centers and small towns, many of which already have strong service learning and pre-service education programs.

The model proposed here also should not be seen as one meant to invalidate the usage of field placements in formal educational contexts – indeed, we see it as a valuable complement to these existing approaches. It is even possible that intentionally structuring afterschool CBO-based field experiences alongside those taking place in formal schooling contexts could yield unexpected and valued outcomes for pre-service teachers.

The diversity and breadth of the contexts where this sort of pre-service teacher education model could be implemented means robust research possibilities to continue to examine how and why certain features of these spaces support, or don’t, varied outcomes related to understandings of 21st century learning environments. A clear next step for this line of research would be a cross-context comparison of pre-service teaching experiences in a variety of formal and informal environments to determine if the results we found here can be consistently found in similar informal contexts that have their own distinct cultures and compare these to those of pre-service teachers prepared in K-12 classrooms. Additionally, as mentioned earlier, the model holds promise in terms of having teachers contextualize out of school field experiences with in-school ones, and research around this could yield advancements to the approach. Furthermore, it would be useful to track pre-service teachers into their in-service careers to observe how experiences related to alternative early field experiences play out in the long term.

The model we propose, which involves schools of education partnering with existing afterschool community-based organizations like the Boys and Girls Clubs to facilitate early field placements for pre-service teachers, provides an alternative teacher preparation model well suited to meeting the demands of the 21st century through providing experiences that align with priorities found in 21st century skill frameworks including collaboration, adaptability, appreciation of diversity and a valuation of learning experiences that extend beyond the walls of schools.

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# References

Allsopp, D. H., DeMarie, D., Alvarez-McHatton, P., & Doone, E. (Winter 2006). Bridging the gap between theory and practice: Connecting courses with field experiences. Teacher Education Quarterly, 33(1), 19–35.

Author 1 (2008).

Author 1 (2009).

Author 2 (2011).

Author 2 (2013).

Chi, M. T. (1997). Quantifying qualitative analyses of verbal data: A practical guide. *The journal of the learning sciences*, *6*(3), 271-315.

Cole, M. (1996). Cultural psychology: A once and future discipline. Cambridge, MA: Belknap.

Dede, C. (2010). Comparing frameworks for 21st century skills. *21st century skills: Rethinking how students learn*, 51-76.

Easter, L., Shultz, E., Neyhart, T., & Reck, U. (1999). Weighty perceptions: A study of the attitudes and beliefs of preservice teacher education students regarding diversity and urban education. *The Urban Review*, *31*(2).

Finn Jr, C. E., & Ravitch, D. (2007). Beyond the Basics: Achieving a Liberal Education for All Children. *Thomas B. Fordham Institute*.

Gallego, M. a. (2001). Is Experience the Best Teacher?: The Potential of Coupling Classroom and Community-Based Field Experiences. *Journal of Teacher Education*, *52*(4), 312-325.

Gee, J. P. (2003). What video games have to teach us about learning and literacy. *Computers in Entertainment (CIE)*, *1*(1), 20-20.

Gee, J. P. & Hayes, E. (2010). *Women and Gaming: The Sims and 21st Century Learning.* New York, NY: Palgrave Macmillan.

Gimbert, B., Desai, S., & Kerka, S. (2010). The Big Picture Focusing Urban Teacher Education on the Community. *Phi Delta Kappan*, *92*(2), 36–39. PDK International.

Gutiérrez, K. D., & Vossoughi, S. (2009). Lifting Off the Ground to Return Anew: Mediated Praxis, Transformative Learning, and Social Design Experiments. *Journal of Teacher Education*, *61*(1-2), 100-117.

Guyton, E., & McIntyre, D. J. (1990). Student teaching and school experiences. In W. R. Houston (Ed.), *Handbook of research on teacher education* (pp. 514–534). New York: Macmillan.

Hannon, P. (2000). *Reflecting on literacy in education.* London: Routledge/Falmer.

Hirsch, B. (2005). *A Place to Call Home: Afterschool Programs for Urban Youth.* New York, NY: Teachers College Press.

Ito, M., et al., (2009). *Hanging out, messing around, geeking out: Living and learning with new media.* Cambridge, MA: MIT Press.

Ito, M., Gutiérrez, K., Livingstone, S., Penuel, B., Rhodes, J., Salen, K., ... & Watkins, S. C. (2013). *Connected learning: an agenda for research and design*. Digital Media and Learning Research Hub.

Jenkins, H., Clinton, K., Purushotma, R., Robison, A., & Weigel, M. (2006). *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century.* White paper. The John D. and Catherine T. MacArthur Foundation.

Jung, M. L., & Tonso, K. L. (2006). Elementary preservice teachers learning to teach science in science museums and nature centers: A novel program’s impact on science knowledge, science pedagogy, and confidence teaching. *Journal of Elementary Science Education*, *18*(1), 15-31.

Jurow, A. S., Tracy, R., Hotchkiss, J. S., & Kirshner, B. (2012). Designing for the Future How the Learning Sciences Can Inform the Trajectories of Preservice Teachers. *Journal of Teacher Education*, *63*(2), 147-160.

Karoly, L. A., & Panis, C. W. (2004). *The 21st century at work: Forces shaping the future workforce and workplace in the United States* (Vol. 164). Rand Corporation.

Kosnik, C., & Beck, C. (2003). The internship component of a teacher education program: Opportunities for learning. *The Teacher Educator*, *39*(1), 18-34. Taylor & Francis.

Kuster, D. (2008). A museum collaboration and interdisciplinary adventure with preservice teachers. *Art Education, 61*, 33-39.

Ladson-Billings, G. (1994). What we can learn from multicultural education research. *Educational Leadership* 51(8): 22-26.

Mahan, J. (1982). Native Americans as teacher trainers: Anatomy and outcomes of a cultural immersion project. *Journal of Educational Equity and Leadership*,2(2), 100-110

Mahan, J. M., & Stachowski, L. (1990). New horizons: Student teaching abroad to enrich understanding of diversity. *Action in Teacher Education*, 12(3), 13-21.

Olson, J. K., Cox-Petersen, A. M., & McComos, W. F. (2001). The Inclusion of informal environments in science teacher preparation. *Journal of Science Teacher Education, 12*, 155-173.

Papert, S. (1993). *The children’s machine*. New York, NY: Basic Books.

Parish, R., and Aquila, F. (1996). Cultural ways of working and believing in school: Preserving the way things are. *Phi Delta Kappan* 78(4): 298-305.

Parkison, P. T. (2007). Field Placement Treatments: a Comparative Study. *The Teacher Educator*, *43*(1), 29-45.

Partnership for 21st Century Skills. (2003). Learning for the 21st century: A report and mile guide for 21st century skills. Washington, DC: Author. Available from http://www.21stcenturyskills.org

Partnership for 21st Century Skills. (2006). A state leader’s action guide to 21st century skills: A new vision for education. Tucson, AZ: Partnership for 21st Century Skills.

Partnership for 21st Century Skills. (2009). P21 Framework Definitions. Downloaded February 2014 from: http://www.21stcenturyskills.org.

Saldaña, J. (2012). *The coding manual for qualitative researchers* (No. 14). Sage.

Schultz, E.L., Neyhart, K., & Reck, U.M. (1996). Swimming against the tide: A study of prospective teachers’ attitudes regarding cultural diversity and urban teaching. *Western Journal of Black Studies*, 20(1), 1-7.

Sleeter, C. E. (2001). Preparing teachers for culturally diverse schools research and the overwhelming presence of whiteness. *Journal of teacher education*,*52*(2), 94-106.

Stone, D. (1996). Preservice art education and learning in art museums. *Journal of Aesthetic Education*, *30*(3), 83-96.

Thomas, D. & Seely-Brown, J. (2011). *A New Culture of Learning: Cultivating the Imagination for a World of Constant Change.*

Voogt, J., & Roblin, N. P. (2010). 21st century skills. *Discussienota (Universiteit Twente)*.

Wilson, S. M., Rozelle, J. J., & Mikeska, J. N. (2011). Cacophony or Embarrassment of Riches: Building a System of Support for Quality Teaching. *Journal of Teacher Education*, *62*(4), 383-394.

Zeichner, K., & Melnick, S. (1996). The role of community- based field placement in preparing teachers for cultural diversity. In K. Zeichner, S. Melnick, & M. L. Gomez (Eds.), *Currents of reform in pre-service teacher education* (pp. 176-196). New York: Teachers College Press.