

# Beyond the Three R's: Environmental Literacy and Social Capital in Olneyville



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## Beyond the Three R's: Environmental Literacy and Social Capital in Olneyville

### Abstract

While the connection between fundamental literacy and social capital has frequently been made, little research has linked environmental literacy and social capital. My thesis explores the relationship between environmental literacy and social capital, in an effort to understand how low-income communities can utilize that relationship to improve local environments, rectify environmental injustice, create access to resources, raise living standards, and live healthier lives. My research consists of participant observation, focus groups, and formal and informal interviews with a group of adult immigrants from Latin America enrolled in English for Action (EFA), a participatory ESOL program based in Providence's Olneyville neighborhood, and from other organizations in the neighborhood. Findings show that learners demonstrate components of environmental literacy in regard to the household environmental problems of rats and trash, asthma, and childhood lead poisoning. Regarding social capital, findings are mixed: learners have social networks through which they share information about resources and environmental issues, but some learners show distrust for members of the Olneyville community outside of EFA. My study also indicates that learners who speak better English have a greater sense of empowerment. A key implication of this study is that social capital can be used to develop environmental literacy and vice versa, indicating that there is great potential to build environmental literacy and social capital together, if a conscious effort is made to address both issues. This thesis includes specific implications for English for Action programming as well.



## Acknowledgements

Four words are painted on the side of William D'Abate Elementary School:  
 "IT TAKES A VILLAGE."

Does it ever.

### **To those who have pushed, prodded, and cheered too**

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## Introduction

On a cool evening early in June of 2003, residents of Portsmouth, Rhode Island packed the meeting room of the local library. The residents, many of them homeowners in the Pheasant Hill neighborhood of Portsmouth, had come to ask representatives from the state why they had allowed the siting of a disposal facility for dredged materials next to Pheasant Hill. The atmosphere in the room was tense, and a meeting that had been billed as a question-and-answer forum quickly became a confrontation between State officials and local residents.

That town meeting was just one event in an ongoing controversy about dredged material that became the focus of an earlier environmental literacy research effort that found Pheasant Hill residents were more informed about environmental issues related to dredging than a sample of Rhode Islanders not from Portsmouth. We observed that the residents of this solidly white, middle-class neighborhood were using their community networks to spread the word about the disposal of dredged materials and its potential effects on the neighborhood, and to organize resistance to the disposal project. The process of organizing in turn brought residents together in new ways to reinforce existing relationships and create new ones (Pleasant, Zarcadoolas, Engelman, Thorpe, & Lerner).

Our research helped us identify a key feedback loop evident in the process of community organizing. The Pheasant Hill residents most directly affected by the siting had done extensive research into the science and health issues involved, and were aware of the town and state government processes that had led to the situation. Their environmental knowledge of the dredge issue was thus fairly advanced and comprehensive. These residents used their social networks with other Portsmouth residents to spread environmental knowledge about dredge disposal to others who did not know as much about the issue. This sharing of information

enhanced relationships among members of the town as they created alliances and pooled resources to oppose the dredge siting. Thus, we found that environmental knowledge, which I'll expand into the term environmental literacy, and social networks, or social capital, in Portsmouth supported each other in a feedback loop that allowed both to flourish.

This thesis is not about Portsmouth. Rather, it is about how the relationship between social capital and environmental literacy might develop in a different community with fewer financial and civic resources, and how that relationship can be used to help them make decisions about health and environment.

## Linking environmental literacy and social capital

Environmental literacy and social capital are different theories with different scopes and purposes. Environmental literacy is *a person's ability and motivation to use critical thinking, problem solving, and decision-making skills to assess, make informed decisions about, and take responsible action toward resolving, an environmental issue* (Roth, 1992; Zarcadoolas, Pleasant,



& Greer, 2003; Zarcadoolas, Pleasant, & Greer, 2004). The concept came about in the context of growing global concern about the health of the planet, which led to an emphasis on environmental education as a way to foster greater environmental awareness and stewardship among the world's people

(Mony, 2002). The focus of environmental literacy therefore goes beyond simply knowing and understanding environmental concepts, it also emphasizes the skills necessary to analyze those concepts, and the ability and motivation to then convert that analysis into environmentally

responsible behavior. Thus environmental literacy has three foci: knowledge, critical thinking skills, and action (see Figure 1 on page 13).

Where environmental literacy is specific in its environmental scope and intent, social capital is broader, with diverse social, political and economic implications. It is defined as *the resources available to an individual or an actor in and through relationships with others* (Bourdieu, 1985; Coleman, 1988; Putnam, 1995). Simply put, social capital can be described as what relationships do for individuals and groups: examples include the typical college alumni network that helps place recent graduates in jobs with older alums, or two neighbors who watch each other's kids after school. Or, to bring social capital back to environmental literacy, take the example of Portsmouth, where some residents used social networks to pool time and money to fight the dredge disposal facility siting. In addition, social capital extends beyond the local level, encompassing entire nations: political scientist Robert Putnam has written extensively about the decline of social capital on a national level affecting voter turnout and political engagement (Putnam, 1993, 1995, 2000a).

How do the two very different theories of environmental literacy and social capital overlap and affect one another? Given the broad scope and versatility of social capital, it is no surprise that social capital theory might have implications for developing environmental literacy among individuals and groups in the creation of structures through which environmental information can be shared. From the environmental literacy end, the three environmental literacy foci of knowledge, critical thinking, and action are key factors that drive the creation and utilization of social structures. From the social capital end, the resources present in social structures often take the form of knowledge, information, and systems of sharing knowledge.

This relationship, whose details I flesh out in this thesis, has powerful ramifications for the creation of a model for strengthening and empowering communities. Speaking specifically to cases of environmental injustice—where a community bears the burden of unfair exposure to an environmental or health hazard, or has not been given equal access to the decision-making process about environmental or health issues (EPA, 2004)—the alliance of environmental literacy and social capital has the potential to give affected communities a greater voice in decision-making, ultimately leading not only to the mitigation of risk and the improvement of local health and environment, but also to a larger role in civic dialogue. This greater engagement empowers communities not only in environmental injustice cases, but in all areas of decision-making.

## **From Portsmouth to Olneyville**

The community where I studied the interaction of environmental literacy and social capital interact is Olneyville, a largely Latino neighborhood (57% of residents are Hispanic) on the west side of Providence (Providence Plan, n.d.-a). Olneyville is the lowest income neighborhood in Providence, with a median family income of \$19,676, compared to the Providence average of \$32,058 (Providence Plan, n.d.-b). The area is marked by high crime rates, high levels of dependence on public assistance, and a general lack of adequate social services (Providence Plan, n.d.-b; Wilson, 4/1/04). Within this community, however, there also exists an active network of organizations attempting to address the neighborhood's troubles. In this context of community activism amidst entrenched poverty, an understanding of the extent and kind of social capital existing in Olneyville could vastly enhance organizations' efforts

within the community. Such an understanding could also prove important to efforts to empower and enfranchise residents in other communities similarly afflicted by poverty and lack of social services.

This thesis examines the relationship between social capital and environmental literacy in a community of Latino immigrants in Olneyville. The central questions framing my research are:

Do the participants in my study demonstrate indicators for environmental literacy?

What forms of social capital exist in the study community?

Do environmental literacy and social capital build on each other in the study community in the same way as in Portsmouth?

## Background

### *Environmental literacy*

#### **An expanded definition**

The term environmental literacy emerged in the 1970s out of growing international concern about the health of the planet. Some scientists, educators, and policy makers began to see a need for fostering a global citizenry that understood how human interactions with the environment were affecting the planet, and that was motivated to take action to counter environmental degradation. One solution, they proposed, was to create an environmentally literate society, informed and motivated to make decisions that positively affect the environment.

The concepts inherent in environmental literacy are generally agreed upon: an environmentally literate individual should have basic understanding of environmental concepts, the capacity to apply that information to one's personal

actions, and the motivation to act in environmentally responsible ways (Kibert, 2000; Meredith, 1996; Mony, 2002; Morrone, Mancl, & Carr, 2001; Orr, 1992; Peri, 1996; Roth, 1992). However, among the existing iterations of a definition for environmental literacy, there is no one

definition in common use. Nor is there a definition that fully acknowledges the broad array of component literacies that factor into basic environmental literacy. I therefore wove together elements of various definitions to come up with a comprehensive definition that was true to the previous work of environmental literacy writers, that incorporated the other types of literacy that



make up environmental literacy, and that reflected the social capital and community empowerment context of my research.

**Definition:** Environmental literacy is a person’s ability and motivation to use critical thinking, problem solving, and decision-making skills to assess, make informed decisions about, and take responsible action toward resolving, an environmental issue (McBeth, 1997; Morrone et al., 2001; Roth, 1992).

The essential components of environmental literacy are:

**Fundamental literacy:** the proverbial “three R’s” of basic education: the ability to read, write, and do basic arithmetic, and the ability to understand spoken language.

Environmental and health information is often communicated at very high reading levels (Doak, Doak, & Root, 1996; Zarcadoolas, Blanco, Pleasant, & Boyer, 2002; Zarcadoolas et al., 2004). If an individual doesn’t have basic reading skills or sufficient vocabulary to understand that information, that person can’t access it to build a personal library of environmental knowledge. Thus, fundamental literacy is a key that unlocks the door of environmental literacy.

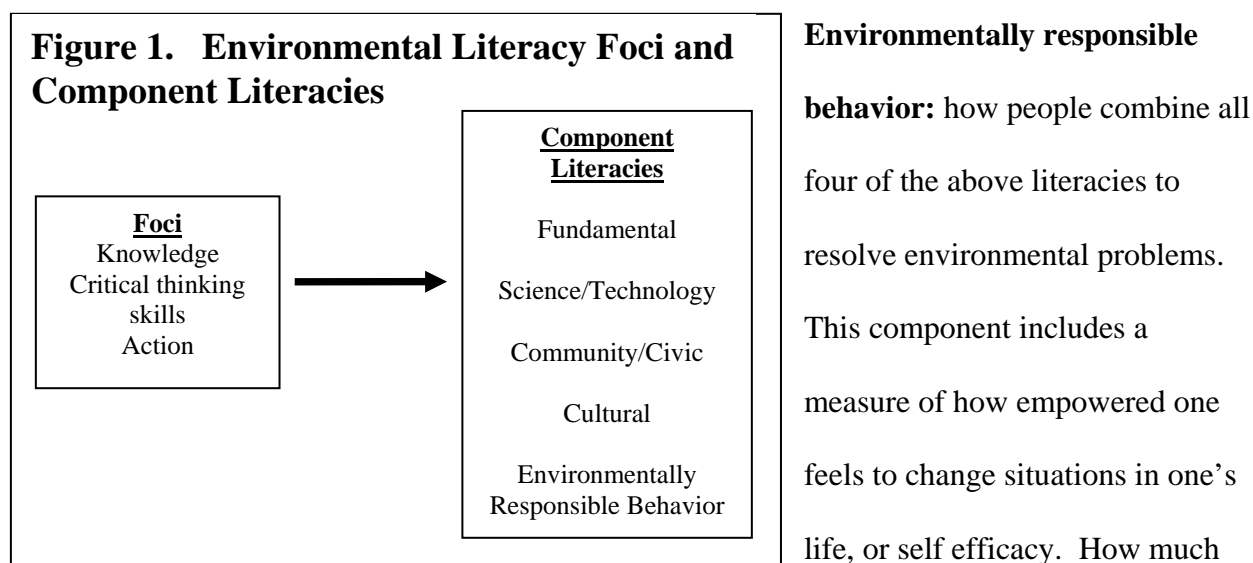
**Science/technology literacy:** basic knowledge of science and environmental issues, and a comprehension of how human interaction with the environment causes environmental problems (Morrone et al., 2001; Zarcadoolas et al., 2003; Zarcadoolas et al., 2004). This form of literacy lays the groundwork for understanding what environmental problems are and where they come from.

**Community/civic literacy:** knowledge of sources of information, and an understanding of civic and governmental processes (Zarcadoolas et al., 2003; Zarcadoolas et al., 2004).

Community/civic literacy enables an individual to understand both how civic processes might contribute to environmental problems, and how government and civic processes can be used to solve those problems.

**Cultural literacy:** understanding of how collective beliefs, values, and worldviews influence how people view and make decisions about environmental problems.

Comprehension of culture's role in environmental decisions helps an individual better understand the context in which environmental problems occur, and make more culturally appropriate decisions about how to solve those problems (Morrone et al., 2001; Zarcadoolas et al., 2003; Zarcadoolas et al., 2004).



self efficacy an individual has reveals how capable he or she feels of making an impact on an environmental issue. If a person has high self efficacy, it is more likely that he or she will act to resolve an environmental problem (Mony, 2002; Peri, 1996; Roth, 1992).

## **Assessing environmental literacy**

Imagine any of the more notorious invasive species in the U.S.—zebra mussels, Japanese knotweed, the cactus moth—and one gets a sense of the extent to which environmental literacy assessment tools and studies have flourished in recent years. A slight exaggeration perhaps, but the emphasis on environmental awareness that emerged in the 1970s led to the blossoming of a multitude of environmental education programs, which in turn necessitated the creation of metrics to assess their effectiveness. As background to my own environmental literacy research in Olneyville, I examined a number of assessment tools to get a feel for how environmental literacy has been measured. What I found was a number of quantitative, test-like instruments that had been administered to various populations of students (McBeth, 1997; Meredith, 1996; Mony, 2002; Peri, 1996), and quantitative surveys, questionnaires, and interviews directed toward students and the general public (Morrone et al., 2001; Volk & McBeth, 1998). This review of assessment tools was instrumental in giving me a sense of how the various components of environmental literacy are broken down for assessment, the types of questions and exercises that are used to measure those components, and the scales on which they are measured.

## ***Social capital***

### **A definition**

Social capital in its modern sense appeared in the 1980s in the work of French sociologist Pierre Bourdieu, who defined social capital as “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized

relationships of mutual acquaintance or recognition” (Bourdieu, 1985; qtd in McLean, Schultz, & Steger, 2002, 5). Social capital consists of the resources individuals can mobilize through their relationships with others; it exists in the interpersonal networks between people. Like financial capital (money), physical capital (physical resources), and human capital (skills or capabilities), social capital facilitates productive activity. It enables individuals to work together toward common goals (Putnam, 1995).<sup>1</sup> The case of Portsmouth residents who organized to oppose the dredge disposal facility siting is one example of this.



Coleman delineates three forms of social capital: trust, information, and norms (see Table 1). The first form, trust, is described in terms of reciprocity: people trust each other when they think there is a high likelihood that obligations between individuals will be repaid, and when individuals have many different obligations to each other. If neighbors borrow sugar from each

**Table 1. Coleman’s Three Forms of Social Capital**

<i>Form</i>	<i>Description</i>
<b>Trust</b>	Many outstanding obligations, and expectation that obligations will be repaid creates trust
<b>Information</b>	Networks for sharing information
<b>Norms</b>	Closed social structure allows a group to create and enforce norms, work toward a common goal

other, pick each other’s kids up from school, and take turns mowing the strip of lawn between their houses, trust between them—at least when it comes to matters of doing errands and household maintenance—is high. This is just one example; differences

<sup>1</sup> Social capital has risen to prominence recently in discussions of declining civic participation across the United States; for example, political scientist Robert Putnam entered the limelight with a hefty book on America’s social capital problem: *Bowling Alone: the Collapse and Revival of American Community*. Putnam attributes declining social capital to the invention of the television: as each successive generation of Americans watches more television, we become more isolated from each other and social capital deteriorates (Putnam, 1995, 2000a). Not only does TV rot our brains, it apparently rots our society as well.

between the levels of need in various communities may lead to variations in the structure of social capital in each distinct community, but in general, the more obligations that exist between members of a social structure, the more trust there is, and the more social capital those members have to draw from (1988).

The second form of social capital is networks for sharing information (Coleman, 1988, S104). As an example, let's say that you and I not only have the kind of relationship where we ask each other for favors, but a relationship based on sharing information as well. You might ask me if I know whether the local health care center has openings, and I might ask you when the open house at the elementary school is. We would be making use of the potential for information in our relationship. Thus, social capital not only provides services through reciprocal obligations in the form of trust, it can also provide information.

The third form of social capital, norms, can be very effective in directing a group's energy and resources toward a common goal. One example of this form of social capital comes from research done by Zhou and Bankston (1994) in the Vietnamese community of New Orleans. The researchers found that the cultural norms of "traditional family values, strong commitment to a work ethic, and high degree of involvement in the ethnic community" fostered high academic achievement in the Vietnamese youth most integrated into the ethnic social structure. Membership in the group incorporated the youths into a self-regulating structure that created certain cultural norms, and that reinforced those norms by punishing or rewarding its members appropriately. The norms were accessed by the youths as a form of social capital that led to academic success.

Aside from identifying three forms of social capital, Coleman also makes the observation that the effectiveness of social capital often depends on the degree to which social networks are

closed structures, and how isolated individuals within a social structure are from each other. That is, social capital functions better if individuals know each other, or, in larger scale scenarios (eg, a nation), share some sort of collective identity (Knack & Keefer, 1997). When this is the case, individuals can work together to create and enforce social norms, which in turn helps establish trust when obligations formed through those social norms are fulfilled (see Figure #). If a social structure is not closed and people are isolated from one another, it is more difficult for individuals to collaborate on the setting or enforcement of norms, meaning that it is less likely that actors will fulfill their obligations to each other, leading to the erosion of trust between individuals.

### **Assessing social capital**

I commented earlier that at first glance social capital seems to be something amorphous and conceptual. In fact, it can be measured and quantified discretely, as different groups of social and political researchers have done for various aims. The World Bank recently (2003) published a detailed questionnaire aimed at measuring social capital in communities in developing countries, with the premise that fully understanding a community's social capital assets can lead to more effective poverty reduction strategies (Grootaert, Narayan, Jones, & Woolcock, 2004). The questionnaire considers six dimensions of social capital: groups and networks, trust and solidarity, collective action and cooperation, information and communication, social cohesion and inclusion, and empowerment and political action. These categories are all recognizable as different indicators for the three basic forms of social capital (trust, information networks, and social norms) laid out by Coleman. Robert Putnam, examining social capital

trends in the United States, considered similar dimensions using indicators such as attendance at public meetings, average number of times volunteered, voter turnout, and agreement with the statement “most people can be trusted” (Putnam, 2000b). There also exist a large number of qualitative ethnographic assessments of social capital and its structure and function in various communities (Dominguez & Watkins, 2003; Falk, 2001; McLean et al., 2002; Saegert, Thompson, & Warren, 2001; Zhou & Carl L. Bankston III, 1994).

## Examining social capital in low-income communities

How does social capital function in low-income communities, and what can it accomplish? Saegert, Thompson and Warren (2001) address these questions by dividing social capital into three levels: social capital within communities, or “bonding” social capital, social capital between communities, or “bridging” social capital, and social capital in ties with financial and public institutions. Each level functions differently and has different outcomes (see Table 2). Within communities, social capital serves to integrate individuals into society, bond communities through the development of internal resources, and cultivate leadership ability that individuals

<i>Level</i>	<i>Description</i>
<b>Binding</b>	Functions within community to develop internal resources
<b>Bridging</b>	Builds relationships between communities, allows communities to share resources
<b>Institutional</b>	Brings external resources into communities, backs existing resources

can then apply to the other two levels of social capital. Between communities, bridging social capital brings resources and opportunities into individual communities,

and helps build trust and cooperation across communities. Ties with financial and public

institutions serve to make intercommunity social capital stronger and more enduring by putting substantial weight and resources behind community initiatives. All three must exist together for social capital to have real power.

Yet, the transformation of poor communities depends on more than just the presence of these three levels of social capital. Individuals in poor communities have historically utilized social capital as a matter of survival when other forms of capital are scarce (Dominguez & Watkins, 2003). To effect real social change, communities need to move beyond using social capital as a coping strategy, to using it to spawn collective action (Saegert et al., 2001). Community-based groups like the Association of Community Organizations for Reform Now (ACORN), the country's largest organization of low and moderate-income families, have shown how effective social capital can be when it is channeled toward creating collective voice for social reform. Since its founding in 1970, ACORN has utilized social capital at bonding, bridging, and institutional levels to successfully advocate for better schools, quality affordable housing, living wages, job creation for the unemployed, community reinvestment by financial institutions, and environmental justice (ACORN, 2003). ACORN is an example of the kind of power social capital can have when put to use fostering collective action.

## ***Research setting***

### **Olneyville demographics**

The setting for my research is the neighborhood of Olneyville, on the west side of Providence, Rhode Island. Olneyville is the lowest-income neighborhood in Providence: median family income in 2000 was \$19,676 (compared to the Providence average of \$32,058), and 41.1% of families were below the poverty level (compared to the 23.9% city-wide average)

**Table 3. Olneyville Demographics**

	<b>Olneyville</b>	<b>Providence</b>
<b>Median family income</b>	\$19,676	\$32,058
<b>% of families below poverty line</b>	41.1	23.9
<b>% Hispanic / % White</b>	57 / 22	30 / 45.8
<b>% language other than English at home</b>	65	43
<b>% speaking English less than very well</b>	58	21.2
<b>% adults w/out H.S. diploma</b>	52	34.2
<b>% moved in last five years</b>	59	55

Sources: (Providence Plan, n.d.-a, n.d.-b; U.S. Census Bureau, 2000)

(Providence Plan, n.d.-b). Additionally, Olneyville has a racially diverse population: 57% are Hispanic, 22% are white, 10% are black, and 7% are Asian (compared to 30% Hispanic and 45.8% white city-wide)<sup>2</sup> (Providence Plan, n.d.-a; U.S. Census Bureau, 2000). 65% of Olneyville residents speak a language other than English in the home, with 58% of those people speaking English “less than very well” (compared to 43%

and 21.2% city-wide, respectively) (Providence Plan, n.d.-a; U.S. Census Bureau, 2000). 52% of adults age 25 and over lack a high school diploma (34.2% city-wide) (Providence Plan, n.d.-a; U.S. Census Bureau, 2000). Transience rates are fairly high as well: 59% of Olneyville residents over the age of 5 had moved in the last five years before the 2000 census, either changing houses, moving within Rhode Island, or moving to Olneyville from a different state or country (Providence Plan, n.d.-a). Crime is also a major concern in the neighborhood, with the crime rate per 1,000 persons in some cases two times higher or more than the Providence city-wide crime rate (see Table 1) (Providence Plan, 2003; Wilson, 4/1/04). Thus, Olneyville is a largely minority neighborhood with few financial resources, low levels of education, and low English language ability, a highly transient population, and one of the highest crime rates in the city. These data paint a demographic picture that would seem to imply relatively low levels of environmental literacy and social capital.

<sup>2</sup> Percentages are for non-Hispanic whites, blacks, and Asians.

## English for Action

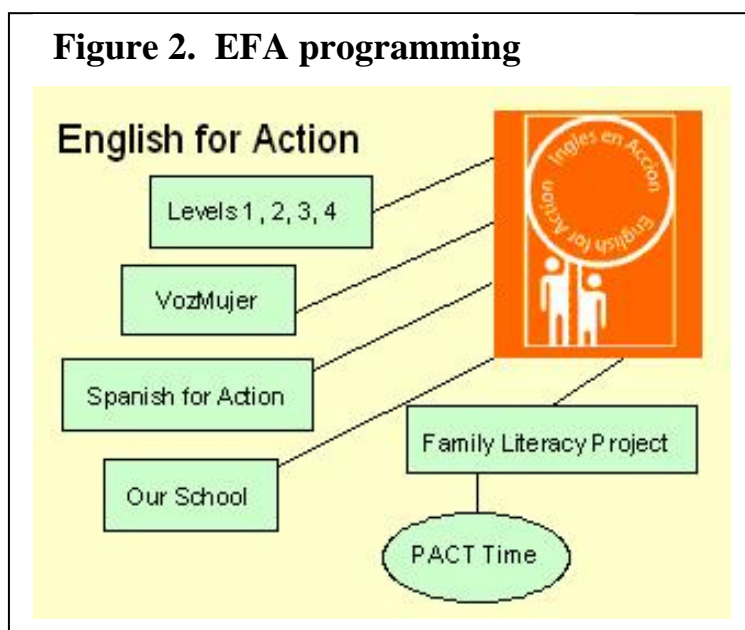
Within Olneyville, I conducted my research with an adult English for Speakers of Other Languages (ESOL) program known as English for Action (EFA). EFA started in 1999 when founder Adriana Young, then an undergraduate at Brown University, began teaching English to a handful of students at William D'Abate Elementary School



EFA's office in Olneyville's Atlantic Mills

using a participatory education model. When Adriana graduated in 2001, she founded EFA with ten Olneyville families and a couple of friends from Brown. The program targets Latino immigrants living in Olneyville, with the neighborhood purposefully selected because “it’s the poorest community in Providence and has no educational institute” (Young, 3/3/04). After just three years in existence, EFA offers an array of ESOL programs and services, including standard ESOL classes in levels 1 to 4, with one being the beginner level and 4 the most advanced, VozMujer (“woman’s voice”), which is solely for women and focuses on English language

**Figure 2. EFA programming**



education in the context of female empowerment, Family Literacy Project, which serves primarily parents of children who attend William D'Abate Elementary School and addresses family issues like education and intergenerational relationships, and Our School,

which offers childcare, mentoring and homework help to the children of adult learners while their parents are in class (see Figure 2). EFA also offers Spanish for Action, a Spanish class for native English speakers taught by two current learners. PACT Time (Parent And Child Together), a weekly activity night for the Family Literacy Project learners and their children, is a companion program for Family Literacy Project that simultaneously bonds families and teaches English. All of these programs take place Monday to Thursday nights at William D'Abate Elementary School and Atlantic Mills in the heart of Olneyville. In addition, EFA offers



periodic workshops on topics such as education, health, and immigration, and is frequently involved in activities that involve the entire Olneyville community. One example is the annual soccer tournament, a key EFA fundraiser, which brings in teams from Olneyville and the surrounding neighborhoods.

EFA is unique among ESOL programs because of its emphasis on participatory education. Participatory education means that the learners themselves shape their curriculum, making it relevant to their daily needs. Thus, though each class

has a facilitator who designs lesson plans and guides the learners, the learners incorporate their own experience and knowledge, as well as their language needs, into each session (Hill, 2/20/04). Even the terminology of EFA reflects this structure: rather than “teacher” and “student,” EFA uses “facilitator” and “learner” to connote the equality of power in the relationship between who is teaching and who is learning, and to reflect the fact that everyone in the classroom is simultaneously learning and teaching. Facilitators may be learning about a teaching technique

while they are leading a group exercise, and learners may be teaching their classmates about fair labor practices while they learn the English vocabulary to express themselves.

In 2004, there are approximately seventy adults and twenty children enrolled in EFA programs, and 151 adult learners and 68 children have graduated from EFA since 1999. 64% of the learners surveyed by the program held high-skill jobs before immigrating: many were accountants, teachers, or engineers in their home countries. 94% of these learners now work in factories, restaurants, and hotels because they lack the English language ability necessary to pursue higher-skill and higher-paying employment.

English for Action and Olneyville are the settings in which I attempted to answer my central questions of how environmental literacy and social capital relate to one another, how they can be assessed through qualitative research, and how the relationship between the two can be used to empower communities. My findings are first and foremost a story about environmental literacy and social capital among a group of Latin American immigrants living in the lowest-income neighborhood in Providence. At the same time, it is also a story about how concerted efforts to create and utilize these two tools can build and empower a wide range of communities in Rhode Island and beyond.

## Methodology

### *Developing a qualitative assessment method*

Though many of the environmental literacy and social capital assessments I reviewed were quantitative tools, I ended up developing a qualitative methodology to measure environmental literacy and social capital in EFA learners. Aside from having too small a number of participants to give quantitative findings much meaning, the primary reason for this decision was that a qualitative tool would be more responsive to the learners' knowledge and skill levels. In the first place, it would allow the learners to display what they know and talk about the aspects of the environmental issues we discussed that interested them, as opposed to having an outsider come in and test them on information that they didn't know or care about. Second, a qualitative, oral tool would get around problems with reading comprehension in classrooms where even learners in the same level might have different Spanish and English language proficiencies.

In addition to being responsive to learner interest and skill level, a qualitative study method would put the learners' environmental knowledge in the context of the learners' life experiences. This can lead to revelations about where learners get information, how they feel about it, and whether they are likely to act on it—data that help create a fuller picture of learner environmental literacy and social capital. Moreover, in the broader context of developing a comprehensive environmental literacy assessment tool for this population, a qualitative tool can be useful in identifying themes, vocabulary, and phrasing with which learners are familiar,

indicating the appropriate tone and level of complexity with which such a tool should be designed.

## ***Research methodology***

My research consisted of four qualitative methods: interviews with leaders in community organizations in Olneyville, participant observation in classes and workshops, focus groups, and member check interviews. The goal of the first method, interviews with organization leaders, was to obtain background information from a service perspective about some of the problems facing the neighborhood and obstacles that the organizations themselves face, and to get a sense of how organizations interact with and utilize each other. In total, I interviewed six leaders from five different organizations and programs within Olneyville; they are: Adriana Young, Executive Director of English for Action; Josselyn Velásquez, Our School Program Coordinator for EFA; Louella Hill, Level 4 facilitator for EFA; Melanie Wilson, Coordinator of the Weed and Seed program at Nickerson Community Center; Dorys Breton, Dorcas Place Family Literacy Project liaison to EFA; and Lisa Aurecchia, Program Coordinator for the Woonasquatucket River Watershed Council.

The goals of the second method, participant observation in EFA classes and workshops, were to get to know the learners and build a level of trust with them, to experience first-hand how the program operates, and to get a feel for the issues affecting the lives of the



Josselyn explains the night's PACT Time activity

learners and the context in which those issues arise in the program. I then used this information and experience to design my third method, focus groups, which was the primary assessment tool I used to measure environmental literacy and social capital (see Appendix). I conducted the focus groups with two EFA classes, the Family Literacy Project and Level 4. They were designed as classroom exercises that aimed to lead the learners in discussion of three environmental issues, rats and litter, asthma, and childhood lead poisoning, that had been agreed upon in a preliminary class discussion I led in Family Literacy Class. The focus groups had three main research goals:

- 1) Assess learners' basic environmental literacy on the three topics;
- 2) Observe and evaluate strategies the learners improvised in response to potential scenarios related to the three topics, paying special attention to trust, isolation, and self efficacy.; and
- 3) Observe the mechanism of social capital in operation on a small scale in the classroom.

I also had the following three teaching goals for the focus groups:

- 1) Encourage the learners to share information on the three topics with each other, thereby utilizing the class network to build social capital;
- 2) Distribute authoritative information on the three topics to address questions that might arise out of the class (see Appendices); and
- 3) Develop learners' ability to address topic-related situations by role-playing possible scenarios.

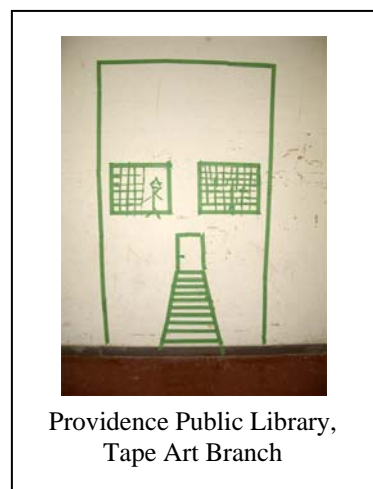
My final method, member check interviews, had the goals of a) following up on themes that came up in the focus groups, and b) assessing social capital on an individual level. I considered the member checks an important part of my data collection, but unfortunately I had trouble scheduling formal interviews because the learners work long hours and have very little

time. Because of this, I was only able to interview two learners from the Family Literacy class, and I held informal conversations with four other learners at workshops and PACT Time.

However, I believe the focus group data stands up well on its own in painting a preliminary picture of learner environmental literacy and social capital.

### ***Qualitative criteria for assessing environmental literacy and social capital***

Based on the quantitative and qualitative assessment tools I described earlier, I devised a framework for qualitatively measuring environmental literacy and social capital among EFA learners. In typical quantitative assessments, environmental literacy and social capital are commonly ranked on evenly spaced, numerical scales. However, this was problematic for my study, as there was no straightforward way to rank the responses of the learners. I therefore opted to assess learners' responses by looking for key indicators. For environmental literacy, I looked for examples of science literacy and community/civic literacy. I tried to incorporate cultural literacy into my assessment, but because of limited time in the focus groups, I wasn't able to delve into the cultural understandings that backgrounded other components of learners' environmental literacy. Time constraints were also why I didn't assess fundamental literacy; EFA screens its learners for literacy when they enroll, so I took it on faith that all



of the learners in my study are Spanish literate. (English literacy, of course, varied considerably.) For social capital, I looked for examples of isolation and trust. I used isolation as a proxy for information networks because it was a term that came up in an interview with one of the Level 4

facilitators, and it reflects some aspects of the social norms form of social capital from Coleman (which I didn't include in my assessment because it was too complex to explore in the time allotted). In retrospect, I probably should have limited my assessment to information networks rather than expand it to isolation, because isolation ended up being too broad to reflect differences in the quality of different types of information networks. An additional indicator, self efficacy, doubled as a marker for both environmental literacy and social capital. Self efficacy, or how empowered one feels to change situations in one's life, is a key element in environmentally responsible behavior; an empowered individual is more likely to act to resolve an environmental problem than one who feels he or she cannot make an impact on the problem. The same can be said for people who are involved in their communities: the more self efficacy a person has, the more likely it is that he or she will participate in community decision-making.

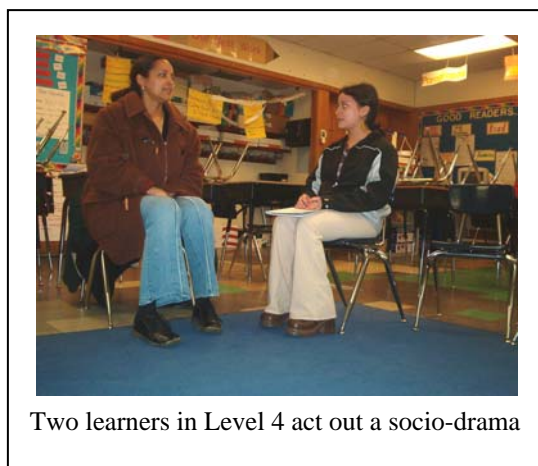
### ***Data management***

My data handling procedure was as follows: formal interviews were tape recorded and then transcribed. Informal interviews and participant observation activities were recorded in my ethnographic journal. Focus groups were video taped and then transcribed, and were accompanied by notes in my journal as well. All video and audio taped conversations in Spanish were transcribed directly into English, and transcription was done verbatim, but not depicting timing, misstatements, or mispronunciation. All transcripts and ethnographic journal records were then coded for four of the five components of environmental literacy (science, community/civic, cultural, self efficacy/environmentally responsible behavior), and elements of social capital (trust, isolation, sense of responsibility or blame, sources of information). The data

were then triangulated by comparing coded responses from the focus groups with coded data from the other three methods.

### ***Discussion of focus group methodology and participants***

In the two focus groups I conducted, in addition to a moderator-led discussion format, I used two devices that proved to be useful in starting conversation and getting some of the shyer learners to speak up. They were role-plays, which EFA calls “socio-dramas” to emphasize the



Two learners in Level 4 act out a socio-drama

fact that the role-plays are reenactments of social and societal relationships between people. I video-taped the socio-dramas and then played them back so the learners could watch themselves. I also used “problem trees,” which require learners to brainstorm what the roots of societal problems are, what the manifestations, or branches, of those problems are,

and what solutions are available to solve these problems. I used the problem tree to guide discussion of asthma, and I ended up simplifying the activity to make it more straightforward: I had learners list the asthma triggers as the roots of the problem, and then had them give ways to avoid asthma attacks for the branches of the tree.

The two focus groups were very different in tone. The Family Literacy Project class is very large compared to other EFA classes, so that focus group had sixteen participants. Also, many of the learners in the Family Literacy class have the most basic of English language skills. Consequently, the Family Literacy focus group was conducted mostly in Spanish, and because

people were more shy in front of the large class, the discussion and role-plays were not as wide-ranging or as animated as the Level 4 focus group. Level 4 had only five participants who seemed to be more comfortable with each other, and all of them speak English at a fairly advanced level, so the all-English discussion and socio-dramas were much more intimate and complex. These differences between the classes do affect the data that came out of each focus group, and I take this into account in analyzing my findings. See Tables 4 and 5 for a look at the profiles of individual learners.

## Learner Profiles

**Table 4. Family Literacy Project** (7 responses out of 16 participants)

<b>Gender</b>	F	M	F	F	F	M	M
<b>Age</b>	-	18	33	43	25	31	25
<b>Country of origin</b>	Mexico	Guatemala	Guatemala	Guatemala	Guatemala	El Salvador	Guatemala
<b>Months/years in U.S.</b>	11 years	4 months	12 years	10 years	years	6 years	years
<b># of children</b>	2	none	3	1	2	2	none
<b>Occupation</b>	-	none	factory worker	none	plastics worker	assembly worker	bakery
<b>Occupation in home country</b>	-	none	none	-	none	none	driver
<b>Level of education</b>	some university	high school	-	-	high school	elementary	elementary
<b>Lives within 1 mile of Olneyville</b>	yes	yes	-	yes	yes	yes	yes

**Table 5. Level 4** (5 responses out of 5 participants)

<b>Gender</b>	M	M	M	F	M
<b>Age</b>	25	31	22	19	20
<b>Country of origin</b>	Guatemala	Guatemala	Guatemala	Guatemala	Guatemala
<b>Months/years in U.S.</b>	4 years	7 years	4 years	1.5 years	2 years
<b># of children</b>	none	none	none	none	none
<b>Occupation</b>	polisher	jewelry worker	polisher	restaurant	boat construction
<b>Occupation in home country</b>	office worker	electronics	none	none	none
<b>Level of education</b>	university	technical school	high school	high school	high school
<b>Lives within 1 mile of Olneyville</b>	yes	yes	yes	yes	yes

## Findings

### *Environmental literacy*

#### **EFA learners demonstrate indicators for science and community/civic literacy**

Overall, I found that the learners demonstrated science literacy and community/civic literacy for all three environmental topics. Individuals in the two classes varied somewhat in which topics they knew more about. However, at least some individual learners were able to accurately report the causes, effects, and individual-level and community-level solutions. Here is an example of the quality of responses from Family Literacy class' discussion of rats and litter.

*Moderator:* What would you do if you had rats in your house?

*Learner:* First you would yell, right? (Laughter) No, first you would take measures in the house: cover the food, put it where the rats can't get in, cover the holes where they come in... Get rid of their food sources. And if they're still there, call the City for an exterminator. Tell them you have rats in your house or rats in the basement, and tell them you need them to come.

This learner is demonstrating both science literacy and community/civic literacy in this single piece of conversation. First, he reveals basic science literacy by explaining that the cause of the problem is that rats are attracted to food within the house, and that he knows what he personally can do to solve the problem. Second, the learner demonstrates community/civic literacy by talking about civic resources available to him if he can't solve the problem by himself: he mentions calling the City to request an exterminator. Later in the conversation, another

learner expanded on this problem solving strategy by mentioning another source for help in the case of rats. She said, “The problem inside the house is the responsibility of the landlord to deal with. He has to call for the fumigator. If it’s in the street, it’s someone else’s responsibility.” This statement, clarifying whose responsibility it is to deal with a rat problem in a private dwelling and in a public space, shows that the learner has an understanding of civic and community processes.

In the Family Literacy class therefore, individual learners demonstrate indicators for environmental literacy: science literacy is evident in the learner’s understanding of the causes behind the rat problem (however, none of the learners mentioned the negative health effects of having rats in one’s house, and when I mentioned rat dander as a trigger for asthma, some learners reacted with surprise), and community/civic is evident in the discussion of landlord and City-level solutions and where responsibility lies for fixing the problem.

The Level 4 learners also showed indicators for science and community/civic literacy. Here is a sample of their answers from their discussion of childhood lead poisoning. Bear in mind that several of the learners had done a project on lead poisoning in a past EFA class, and that this entire discussion was held in English.

*Learner 1:* In kids, lead hurts their brains, it can cause hyperactivity. In 1976? In 1978 they passed a law. They were using lead as the base in paint because it lasts long. They found a lot of problems with lead.

*Moderator:* Why is this a big problem for children, do you think?

*Learner 2:* They are growing quickly.

*Moderator:* Do you remember, what can people do to avoid lead in their house?

*Learner 1:* The government has a program to test lead in your house.

*Moderator:* Do you have to pay anything to get it tested?

*Learner 1:* The landlord has to pay, but the city gives subsidy to make the low price.

*Moderator:* What can parents do [so their children don't get lead poisoning]?

*Learner 2:* Wash hands often.

*Learner 3:* Don't let them play on the floor, near the wall, near the window

*Learner 1:* Sometimes on the outside there is lead in the soil.

*Moderator:* How does it get there?

*Learner 1:* From the dust.

In this discussion, it is a little tricky to separate out what individual learners know about lead poisoning, but the composite picture of knowledge from learners 1, 2, and 3 does demonstrate different indicators for environmental literacy. The three learners demonstrate science/technology literacy by explaining how children are exposed to lead, what the effects of lead poisoning are on children, and how to mitigate exposure. Learner 1 even knows why lead had been used in paint, and the approximate date that lead paint was banned. The learners also exhibit community/civic literacy in mentioning the legal process of banning lead in paint, and the civic resources for dealing with lead paint in homes, including financing options for lead removal.

## Community/civic literacy needs development

While learners in both classes demonstrated aspects of both science literacy and community/civic literacy, it appears that their community/civic literacy is less developed than their science literacy. Community/civic literacy is knowledge of sources and reliability of information, and understanding of civic and governmental processes. It enables an individual to understand how civic processes might contribute to environmental problems and problem solving.

In general, learners are weaker in this environmental literacy component: many of them don't know details about the governmental and community resources available to help them address sanitation and health problems. Only rarely did learners bring up specific resources—once, when a learner in the Family Literacy class told the group that the American Lung Association runs a free asthma clinic twice a month in the neighborhood, and once when a woman said she had heard about Olneyville Housing Corporation and their homeowner classes. Generally answers to questions about community resources are vague:

*Moderator:* Are there people who can help us with the problem of rats?

*Learner:* Call the City so they can come fumigate.

*Moderator:* Have you tried this?

*Learner:* No, someone told me. In my neighborhood they had the problem, so they called the city and they came to fumigate.

Here, the learner has heard of the resource through word of mouth, but doesn't know details: which department one calls, how the process works. If she actually has a rat situation

arise in her apartment, it is unlikely that she will know who to contact to get help, how to negotiate that encounter, and what her rights or entitlement are in that situation.

I found other evidence of weak community/civic literacy in an experience I had with the learners in a different setting. One Saturday I attended a workshop for the learners aimed at building awareness of the resources and different skills present within the group. The learners and the facilitators present filled out a sheet entitled “*Hunt for Knowledge*” (see Figure 3). The paper was covered in boxes that described talents, skills, or experience that an individual might have, and the task was to find someone in the group with those skills and write his or her name in the box.

**Figure 3. Hunt for Knowledge**

Find someone who...

- ...has studied another language.  
What language did they study?
- ...knows a woman who is politically active.
- ...has been to an Olneyville Neighborhood Association meeting.
- ...knows a health center in Olneyville.
- ...knows how to open a bank account.

Prior to the workshop, the learners hadn’t known about many of the various resources available to them in the Olneyville. After the activity, they expressed amazement at the extent of resources in their neighborhood. They were also impressed by the resources available through

each other—they had not thought of each other as resources or sources of information. Thus, it appears that there is room for learners to grown in the understanding of the resources and processes that make up community/civic literacy.

## ***Social capital***

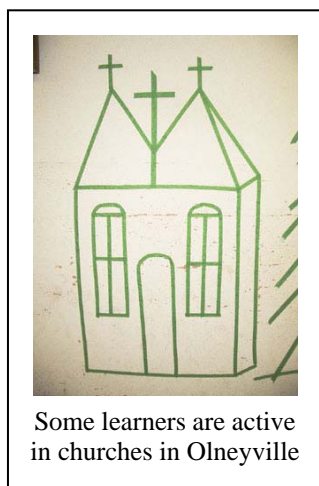
### **Isolation**

The effectiveness of social capital depends on how isolated individuals within a social structure are from each other. If individuals know each other, they can more effectively work together to create norms, build trust, and ultimately act collectively. Initially, it was difficult to determine whether EFA learners are isolated, and the extent of that isolation. On the one hand, the learners seem isolated from each other because of work and language barriers. Louella Hill, one of the Level 4 facilitators, told me:

...my realization in working with the learners is that they live really isolated lives. [...] They're lumped into this Latin culture, but the truth is they really come from diverse places, and maybe the majority of them come from Guatemala, but that doesn't mean that they know each other or that they understand each other's religion or each other's life experiences. [They] work these long hard hours and they go home to these closed houses and watch TV and the only people they know are their cousin and their coworker, and then they talk on the phone and dream of their family back home. (2/20/04)

In other words, while the learners come together for class each night, busy work schedules and cultural differences keep many of them from developing relationships outside of EFA-sponsored classes and events.

On the other hand, it is clear that word of mouth plays an important role in the sharing of information between EFA learners, which suggests that learners' isolation is not all that acute. Several examples illustrate this: for instance, Adriana Young, executive director of EFA, and Melanie Wilson, a coordinator at Nickerson Community Center, report that EFA and Nickerson seldom have to publicize their services because classes and programs fill up to capacity based solely on word-of-mouth (Wilson, 4/1/04; Young, 3/3/04). Also, in my earlier section on community/civic literacy, I mentioned that one learner said that she heard through word of



mouth about the City's extermination services. The Hunt for Knowledge showed that learners are involved in a number of community groups and activities outside of EFA, including workers' rights groups, immigrant rights groups, and other educational programs. And, of course, EFA itself serves to break down isolation between learners through its classes, workshops, and community activities. Thus, though it is difficult to determine the extent and

quality of relationships between learners and others in the Olneyville community, it appears that at least some EFA learners are not as isolated as it first appears.

## Trust

Using isolation as an indicator for a lack of social capital, I also looked more specifically at trust and the question of whether or not people in Olneyville trust each other. Melanie Wilson of Nickerson Community Center's Weed and Seed program said "no", and attributed lack of trust in the community to high levels of crime and the transient nature of the neighborhood. Residents fear their neighbors, and don't stay long enough in one place to develop bonds with the people they live near. This inhibits trust between residents, which in turn forestalls any ability to foster norms that penalize criminal activity and reward constructive behavior.

This lack of trust revealed itself in the EFA learners in their portrayal and discussion of relationships between landlords and tenants. At first, it appeared that the learners trusted their landlords: in both of the landlord situations acted out by the Family Literacy class, the landlords and tenants resolved their issues in record time, and the landlords were always extremely responsive and accommodating. Here's an example from a socio-drama in which the tenant was worried that there might be lead paint in her house and brought her concerns to the landlord. This socio-drama was acted out in English.

*Tenant:* I have one child. Have problem with the paint. Needed the paint?

*Landlord:* I can come check tomorrow. I have to check all the windows. Don't worry about it. I can fix it.

The complexity of expression in this conversation was constrained by the learners' language ability, but the superficiality of the relationship between the landlord and the tenant was the same in both English and Spanish socio-dramas. Initially, this seemed to indicate that

the learners trust their landlords and have great relationships with them. However, when I asked the learners whether they thought this scenario was realistic, they responded otherwise:

*Moderator:* What did the tenant say to the landlord?

*Learner (who played the role of the tenant):* I said that she should come check the paint because I have a child.

*Moderator:* And what did the landlord say?

*Learner:* She said she'll come fix it. But I don't believe her.

The learners were acting out idealized landlord-tenant situations (a combination of wishful thinking and the bashful actors trying to get off the stage as quickly as possible), and don't actually have a great deal of trust in their landlords. Another comment by a different learner illustrates this further:

In my house, if I say to the landlord, I have a rat problem, he says so what? He's Chinese. He speaks his language with English, and so he doesn't do anything.

Here it is evident that not only doesn't the learner trust his landlord, but there is also an ethnic and linguistic barrier that impedes the creation of trust. The landlord isn't responsive to the learner's problems and the two can't communicate, and so the learner feels that there's no constructive relationship between them.

The Level 4 learners showed slightly more mixed feelings about trust and landlords, though the feeling seemed to be that ultimately, if the landlord is unresponsive, the tenant has no choice but to deal with problems by him/herself. One of the learners revealed that his father is a

landlord, and even he put it, “I think we gonna work together. The neighbor and the landlord. But if the landlord don’t do anything, the neighbor had to do it.”

## ***Self efficacy***

### **Sense of self efficacy is greater for Level 4 learners than for the Family Literacy class**

Individual sense of empowerment, or self efficacy, is a key element in both environmental literacy and social capital. Environmental literacy requires on self efficacy to turn environmental knowledge into environmentally responsible behavior. Social capital uses self efficacy as an indicator for how engaged individuals are in their communities—the more self efficacy a person has, the more likely it is that he or she will participate in community decision-making, elections, etc. Thus, self efficacy is a dual indicator, with implications for both environmental literacy and social capital.

I found that the Level 4 learners show greater self efficacy than the Family Literacy learners. This difference is apparent in the socio-dramas each class performed addressing landlord-tenant relationships when there are rats in a house. I mentioned in the previous section that the learners didn’t view the socio-dramas as particularly realistic: they said that the tidy resolutions reached by the landlords and tenants were unlikely to happen in real life. However, while the agreements reached by the two parties involved might not be realistic, the way in which the learners from the different classes approached the same situation still reveals information about how different learners envision their roles in this relationship. Here are transcripts of the two socio-dramas.

### **The Rat Socio-drama: Family Literacy Project**

*Tenant:* Maria, I have a problem. In the apartment there are a lot of rats. At night you can hear them in the walls. Is there any way you can get an exterminator? I know that I can take steps to solve the problem, like put the garbage in its place and put away food in the house but I wanted to request that you send a fumigator, or set traps and try to cover the holes where they get in.

*Landlord:* Okay, we'll try to do it. It's good when we communicate to do things, and we'll do what we can to eliminate them.

In this role-play, the tenant shows a basic sense of self efficacy in asking the landlord to take care of the problem in the apartment and in telling the landlord what steps he thinks need to be taken. The landlord acknowledges the tenant with respect and agrees to work with him on solving the problem. Now compare this example to the role-play from Level 4.

### **The Rat Socio-drama: Level 4**

*Tenant 1 (on the phone):* Hello, excuse me, can I speak to José Luis? Hi sir, may I talk with you about the apartment? I have problems with the apartment.

*Landlord:* What kind of problems?

*Tenant 1:* Can you come here and see?

*Landlord (looks at his calendar):* Okay, I'll come at six.

*(Landlord arrives at the apartment)*

*Tenant 1:* I have lots of problems here with rats. I clean the apartment, but I think they live in the basement.

*Landlord:* I see the neighbor who lives in the second floor, he has a dirty apartment.

Should I talk with him about it? Because it is a big problem.

*Tenant 1:* No, I talk with you. Can you clean the basement?

*Landlord:* Yeah, because I have a responsibility to keep clean the apartment.

*Tenant 1:* I like when people listen to what I have to say.

*Landlord:* You can come with me to talk with Mario about the apartment?

*Tenant 1:* Okay (They go to the second floor apartment)

*Landlord:* Hi Mario. Have you seen rats in your house?

*Tenant 2:* No, I think they are rabbits. (Tells a story about finding little bites in his cheese.)

*Landlord:* I think we have a problem. I have to call the exterminator. You have to clean too, because if you don't keep the apartment clean, you're going to have rats in here.

*Tenant 2:* I'm working 15 hours a day, I don't have time to clean the apartment.

*Landlord:* You have to keep your apartment clean, because you're going to have rats in the apartment.

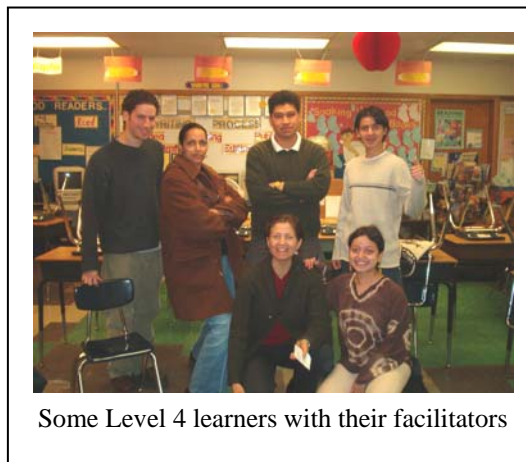
*Tenant 2:* Okay, I'll clean on Saturday.

*Landlord:* Okay, you'll clean the apartment, I'll call for an exterminator.

*Tenant 1:* And you'll clean the basement, and he'll clean his apartment.

This socio-drama is a good deal more complex than the Family Literacy example. Negotiation is happening on a number of levels. On one level, the first learner asserts his rights as a tenant by asking the landlord to clean up the basement, which is where he thinks the rats are living. He feels empowered to request that the landlord come over to see the problem in person,

and then feels comfortable being direct with the landlord about where he thinks the problem lies and what the landlord's responsibility is. The second tenant feels similarly empowered: he is able to explain to the landlord that his work situation has been affecting his ability to keep the apartment clean. On a second level, the landlord and the first tenant collaborate to bring pressure to bear on the second tenant, whose dirty apartment is contributing to the rat problem. The two men feel empowered to act, but they understand that acting together gives them even greater power, and so they join forces. The conscious decision to go beyond addressing the problem individually, and marshal support for addressing the situation collectively, displays a greater sense of self efficacy, which translates into greater social capital for the Level 4 learners.



## Conclusions and implications

### ***Summary: central questions revisited***

These findings from focus groups and interviews show, in answer to my first central question, “Do the participants in my study demonstrate indicators for environmental literacy?,” that at least some EFA learners demonstrate science literacy and community/civic literacy. However, some learners are weaker in the element of community/civic literacy than science literacy, a fact that is not surprising given their status as immigrants with varying English language proficiency. In regard to my second question, “What forms of social capital exist in the study community?,” I found that learners rely on information social capital to find out about community resources, and that they are less isolated than at it first appears, maintaining connections to people and resources through and outside of EFA. When it comes to the trust form of social capital, however, learners exhibit little trust for landlords, an indicator that they might not trust other people they interact with in Olneyville. Finally, with regard to both of these questions, I found that learners who had more advanced English language ability exhibited a higher sense of self efficacy than the beginning English speakers. This means that as learners’ English language skills improve, so too are elements of their environmental literacy and social capital likely to strengthen.

Regarding the third central question, “Do environmental literacy and social capital build on each other in the study community in the same way as in Portsmouth?,” the answer seems to be a tentative yes. I infer from the role information social capital plays in informing learners about resources in Olneyville that social capital does facilitate the spread of environmental

information; the learner who found out about City extermination services through word of mouth is one such example. But does environmental literacy promote the growth of social capital? I can't answer this question directly, but I can point to the Hunt for Knowledge as an example of an activity that, in building a certain type of knowledge, also builds social capital by bringing individuals together to share experiences and information. This suggests that similar activities that promote environmental literacy in a community-building setting would build social capital in a similar way.

### ***Qualitative environmental literacy and social capital assessment: a qualified success***

A background goal of my research was to contribute to ongoing work at Brown's Center for Environmental Studies on the development of an environmental literacy assessment (ELA) tool. I therefore have a few words about my qualitative methodology and its implications on such a tool. From my research methodology itself, it is apparent that qualitative assessment of environmental literacy and social capital leads to nuanced and context-appropriate insight into community function and structure. Past efforts to assess environmental literacy have generally been quantitative in nature, with an emphasis on developing test-like measurement tools. However, if the desire is to understand an individual's full environmental literacy, that is, an individual's combined fundamental literacy, science/technology literacy, community/civic literacy, cultural literacy, and environmentally responsible behavior, then a quantitative assessment tool will not tell the whole story. At the same time, though, it is also clear that qualitative tools like the focus groups I conducted are time consuming in design, administration, and analysis, and lack in some forms of specificity and accuracy. A reasonable compromise

would be to first use a smaller-scale qualitative tool like the one I devised to get a sense of the issues that are important to a community, the vocabulary community members use, and the accuracy and quality of their information and information sources. The data gathered from this preliminary qualitative tool could then be used to develop a larger-scale quantitative assessment tool.

### ***Implications for English for Action***

Speaking to English for Action specifically, it is clear that relevant environmental and health education through EFA programming and curricula works well. The learners retained much of the information from previous classes on asthma and lead poisoning, and were able to teach each other about those topics. Additionally, EFA should continue to facilitate discussion and education about community and civic resources. While some of their workshop programming is brand new and it is difficult to tell as yet how effective they are, initial response from learners to activities like the Hunt for Knowledge has been positive. Concerted efforts should be made to build community/civic literacy by informing learners about available resources. Finally, EFA should continue to cultivate relationships with other organizations and ethnic communities in Olneyville. As seen from the learner's quote about trying to communicate with his Chinese landlord, cultural and linguistic barriers impede the development of social capital in the diverse neighborhood that is Olneyville. Efforts to reach across the boundaries that exist between different groups in Olneyville would go a long way toward creating a cohesive social structure to facilitate the creation of social capital in the community.

## Recommendations for further study

I have a number of recommendations for anyone who wants to continue researching social capital and environmental literacy in Olneyville. A first, simple step would be to create an asset map of community resources in the neighborhood. As I mentioned in my introduction, Olneyville has a large number of very devoted organizations working to improve life in the community. Many of these groups are linked to each other through the Olneyville Collaborative, a loose organization of community leaders that works to attract business, clean up the neighborhood, and build a sense of community through neighborhood-wide activities. Using the Collaborative as a starting point, it would be a fairly straightforward task to catalogue all of major positive dynamic forces in the community and create an easy reference of resources for residents and other community organizers.

As part of this project, or as a second research avenue, it would be helpful to incorporate statistical data of client demographics for social service agencies in Olneyville. This information would allow local agencies to better tailor their services to the needs of their clients, and, from an environmental literacy perspective, would make it easier to design demographic-specific environmental assessment and education tools.

Continuing in the environmental literacy vein, a third recommendation is for further research on environmental literacy metrics that incorporate qualitative and quantitative data. My work reveals some of the strengths and weaknesses of qualitative research, but what does quantitative research have to offer an environmental literacy assessment tool in a community setting like Olneyville?

Fourth, when I investigated levels of trust among EFA learners, I focused on the landlord-tenant relationship. Another interesting research project would be to examine learner

attitudes toward power structures in government agencies and private institutions. Recall that government and institutional involvement is listed as a key level of social capital development by Staegert, Thompson and Warren (2001). However, it is likely that at least some of the learners are illegal immigrants. Do they and would they trust greater government involvement in the community, and would it affect their ability or desire to participate in neighborhood social structures?

Lastly, I recommend research on inter-ethnic social capital networks in Olneyville. The community is a diverse one, with some signs of ethnic divide among residents. An examination of how those divides can and are being transcended by community organizations could help foster a greater sense of community in Olneyville and lead to the development and expansion of inter-ethnic social capital.

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## Appendices

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## ***Focus group protocol***

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### **Health Information Exercise**

This exercise has three purposes. First, we're going to share information that we already know with each other so that we can learn from each other. Second, we're going to learn a little bit about some of the resources available to people in Providence to deal with these problems. Third, we're going to act out situations that may arise so we can help each other brainstorm how to deal with them.

### **Rats/Trash**

Providence has a rat problem! The people in charge of the City are constantly fighting the rats, trying to clean up the city. Right now, we're going to discuss together what your experience has been with rats in the city. After that, we'll talk about what you can do to keep rats out of your neighborhood, and who you can call to get help with rats and garbage problems.

#### **I. Discussion questions**

1. When I came in a couple of weeks ago, a lot of people said rats are a problem where you live. Let's see again, how many of you have seen rats in your neighborhood? (Raise hands.)
2. What words would you use to describe rats? (Pick on people and have them give me a word or a phrase)
3. What attracts them? What do people do that make rats like Providence?
4. Do you do anything to make the rats go away? CAN you do anything to make them go away?
5. Imagine that you had rats in your house. What would you do? Who would you go to for information? Who do you think could help you get rid of them?
6. Who do you think should be responsible for taking care of the rat problem?

#### **II. Introduce vocabulary**

(Write vocab on board. Have students repeat the words after me. Ask who knows what they mean in Spanish, give them the meanings.)

rat  
garbage  
trash  
garbage can

garbage can lid  
 Department of Public Works  
 exterminator  
 bait/trap

### III. Introduce solutions to rat and garbage problems

(Hand out DPW info. Point to vocab as I talk about each term, especially Department of Public Works, garbage can, garbage can lid.)

Main points:

- DPW is the city agency that handles rat and trash issues.
- You can avoid attracting rats by putting your trash in a can and covering it firmly.
- Don't keep pet food and water out overnight,
- Put food away after you're done with it, cover it, don't leave it out.
- Keep your yard free of trash and clutter.
- DPW gives individuals 2 free baitings a year to get rid of rats.
- DPW has a lot of services for neighborhoods to stay safe and clean, and they have staff who speak Spanish! (Go through handout with DPW phone numbers.)

### IV. Socio-drama:

You have rats in your house and you want to call DPW to have an exterminator come.

(prop: telephone)

Handouts:

DPW numbers and names

Tips on how to get rid of rats (keep garbage covered, etc)

Rules on garbage storage, collection

## Asthma

One of the problems with having rats around is that they can cause health problems like asthma. First we're going to discuss some of the things we've heard about asthma, and then we'll talk about what you can do if you think you or someone you know might have asthma. I know Erick has already talked to you about asthma, so maybe YOU can teach ME what you know about it.

### I. Discussion questions

1. Do you know anyone who has asthma? (If no: Have you heard about asthma before?)
2. What happens to them when they have an asthma attack? How do they know they are having an attack? (Or: How do you think you could tell if someone was having an asthma attack?)
3. Is there any way to control their asthma? Do they do anything to avoid having an attack?
4. Do they take any medicine for their asthma? How often do they have to take it? What happens if they don't take it?
5. Have they ever told you what causes asthma?
6. If you thought you or your child had asthma, who would you go to for information or help? What questions would you ask?

### II. Introduce vocabulary

asthma  
 asthma attack  
 allergy  
 allergic  
 allergen  
 trigger  
 cockroach  
 dander  
 to breathe  
 inhaler

### III. Introduce basic info on asthma and its causes

(Hand out HUD paper on asthma and allergies, narrative about child with asthma.)

Main points:

- Asthma is a common disease, and it is becoming even more common.
- Asthma attacks can be caused by many different things, including pet and cockroach dander, mold, dust, physical activity, changes in weather, etc.
- Asthma can't be cured, but you can avoid attacks by taking medication (pills/inhaler), and by avoiding the asthma triggers.

- Asthma can be fatal, so you need to be careful about avoiding triggers and taking medication.
- If you have an attack and don't have medication, go to the emergency room as soon as possible.

#### IV. Socio-drama

You are taking your child to the doctor because you think s/he might have asthma.  
What questions do you ask?

(prop: inhaler)

Handouts:

HUD allergy paper

Narrative about family with asthma

Possibly a list of medical contacts or hospitals with emergency rooms.

## Lead

Providence has a lot of older homes. If your home or apartment is over 30 years old, you may have lead paint in your house, and it may affect the health of your family. First we're going to discuss what we have heard about lead and lead poisoning, and then we'll talk about what you can do if you think you might have lead where you live.

### I. Discussion questions

1. Does anyone live in a neighborhood with houses that might be over 30 years old?
2. Have you ever heard anyone in your neighborhood talking about lead? What do they say? (Or: Has anyone taken the course on housing offered by the Olneyville Housing Corporation? What did you learn about lead from that course?)
3. Who could you ask for information about lead paint in your house? What questions would you ask them?
4. Who could you ask for information about lead poisoning? What questions would you ask?

### II. Introduce vocab

lead  
poisoning  
toxic  
paint  
to remove  
calcium  
iron

### III. Main points

(Hand out HUD and EPA packets)

- The most common cause of lead poisoning is through lead paint, though you can also be exposed to lead through drinking water and construction activities.
- Lead paint exists in houses that were built before 1978, and can be a health problem if the paint is cracking and flaking.
- Lead gets into children's bodies when they put their hands in their mouths after playing on the floor or in the dirt, when they chew on window sills, doorways, or paint chips, or when they inhale airborne lead paint dust.
- Children ages 6 and under are at high risk for lead poisoning because they're growing so fast and they like to put their hands in their mouths. Their bodies are still developing, so lead poisoning can cause a lot of problems, including behavioral problems, learning disabilities, and even death.
- You can reduce the risk of lead poisoning by making sure your child washes his/her hands often, especially before eating and going to bed, by washing toys once a week, and

by cleaning surfaces with a damp cloth or sponge and mopping instead of sweeping hard surfaces. You shouldn't vacuum carpets, as the lead dust will just become airborne. Instead, you can borrow a special vacuum cleaner that traps lead dust.

- You should also make sure your child gets enough iron and calcium, and feed him/her foods low in fat.
- Your landlord or the person you bought your house from was/is required to give you information about lead if the house was built before 1978.
- There are loans available to help homeowners remove lead paint from their homes.
- Don't try to remove lead paint yourself, because you may make the problem worse.

#### IV. Socio-drama

You take your child to the doctor and want him/her to be tested for lead.

Your child is found to have a high blood lead level.

You want to get information about borrowing a lead-safe vacuum.

You want to find out how old your home is and whether there could be lead paint in it, so you call your landlord.

Hand outs:

EPA/HUD handouts

HELP Lead Safe Center contact and info

RIDOH contact and info

## *Focus group handouts*

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