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Confronting Inequity: Participatory Education Impacting Health At Work

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Abstract
Occupational health educators partnering with Latina/o immigrant communities are challenged to cross the boundaries of traditional dominant culture assumptions about knowledge and action. Together they seek to understand the risks that workers face daily, their pressing needs to work for survival, and the limitations of bringing institutional enforcement to their workplaces. A critical ethnographic approach may start with understanding how knowledge and practices are held and used in immigrant communities and the role of social agency in responding to learning and workplace hazards. Peer educators leading popular education curricula, in community-based organizations, is a promising approach. The effect of popular education in its most authentic form requires that curricula are created, presented and evaluated as a joint effort between communities needing skills and capacities in occupational health, organizers of workers in the communities, and occupational health experts willing to develop post-colonial knowledge and practices outside disciplinary and institutional boundaries. Educators responding to unique, local, social and cultural histories of communities recognize a social ecology of learning. As a critique of colonial approaches, an intentional educational science of mediation should be practiced to both describe native cultural funds of knowledge and ways of examining these processes in partnership. The human social ecology of learning approach seeks to decolonize dissemination by turning the focus away from decontextualized

mechanisms; it promotes understanding the contemporary confluence of media, transnational hybridity, and the active role learners have across languages to use cultural capacities to design and re-design their lifeworlds. Occupational health educators should explore and document what these communities know and need to know in ways that peer educators and workers can trust and teach each other sustaining occupational health practices to strengthen worker community-based support.

Keywords
occupational health education, Latina/o immigrants, post-colonial curriculum

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Introduction: Worker social history and power in occupational health education

Occupational health educators partnering with Latina/o immigrant communities are challenged to cross the boundaries of traditional dominant culture assumptions about knowledge and action. My first lesson as a young health and safety educator was this: the workers are the experts. This paradigm shift became a central principle in approaches to organizing curricula for workers. What started out as a goal to activate workers at the center of education on health at work became an evolving understanding about what workers and persons with disciplinary knowledge may explore together in trainings and program action. Together we seek to understand the risks that workers outside of traditional institutions and in the community face daily, their pressing needs to work for survival, and the limitations of bringing enforcement to their workplaces through individual action. Beyond a process of transferring content knowledge to workers, we aim to engage social processes of knowledge creation and support for practices that may enable social action, sustainability and worker health. What follows here are possible answers and directions related to how Latina/o workers and other immigrant peoples can confront the global colonial discourses and practices related to domination and extraction in ways that build and share their expectations, knowledge and practices.

Social, cultural and historical contexts impact occupational health curriculum design, implementation, and evaluation related to knowledge/content transfer, motivation, and worker empowerment. Death at work shows a stark contradiction; over time death rates for all workers are declining, but death rates for foreign born Latina/o workers are consistently higher than for other groups (Cierpic, Styles, Harrison, Davis, Chester, & Lefkowitz, 2008; Singley, 2009). Forst, Anozie, and Rubin (2010) found this disparity extends to work related traumatic injuries for Latina/o's compared to other racial/ethnic groups in Illinois when they examined records from hospital trauma units. In efforts to challenge these trends through participation, recent educational interventions with Latina/o immigrant workers seek to balance traditional knowledge transfer with sociocultural learning processes to promote support for knowledge and social practices (Ochsner et al., 2012; Williams, Ochsner, Marshall, Kimmel, & Martino, 2010). To confront the inequity of these trends for Latina/o workers and other non-dominant culture participants, occupational health curriculum, policy, and intervention needs to focus on participatory worker occupational health education to expand the goal of intervention from

knowledge transfer to conceptualizing social practices as power to address the oppression of injury and death as a form of colonialism (Andreotti, 2011; Hickling-Hudson, 2011).

For occupational health curriculum designed for immigrant or non-dominant culture participants, educators need to begin with the social, cultural, and historical relationships that workers have in their communities. “Workers are people too,” according to Krieger (2010, p. 104), and too often they are “sick and tired of being sick and tired,” as described by Murray (2003, p. 221). In my 30 years as an educator in settings ranging from early childhood special education, to union-based training, to community-based education for immigrant workers, my colleagues and I have utilized peer-led popular education approaches to designing curricula with the goals of assessing and building the competencies of learning participants. The crux of these approaches is what the peer educators and participants say to themselves in dialogue related to content and practices. I have learned that peer educators are trusted persons, fluent in the language and hybridic cultural practices of the participants, and adept at recognizing and facilitating practices that re-align the power/knowledge of participants in specific work settings. My shock at institutional reviews casting doubt on the effectiveness of empowerment and engagement in occupational health curriculum has led me to write this critique. In the process I realized that the role of peer educators in occupational health to enact the power of persuasion in culturally hybridic and relevant ways can never be measured through randomized controlled study designs, the gold standard of health care research. In this essay I propose that curriculum intervention and evaluation designs such as the fidelity of implementation (FOI) approach offer the flexibility and relevance for educators and their partners encompassing ecologies of learning to describe and document how peer leaders merge disciplinary and experiential content with hybridic cultural practices in community-based learning and work settings (Century, Rudnick, & Freeman 2010).

Workers receive and share support through their families and social networks, and respond to oppression and exploitation in unique, adaptive ways as demonstrated by community-based organizing in workers' centers (Bobo, 2009; Choudry, Hanley, Jordan, Shragge, & Stiegman, 2009; Fine, 2006). Oppression and inequity are the result of power relationships that impact learning and practices in each of these contexts; the social theory of Gramsci's praxis, Freire's dialogue (Mayo, 1999), and Foucault's power/knowledge (Foucault, 1980; Rouse, 1994), can guide the development of post-colonial curriculum for occupational health capabilities. Praxis is the process of learning and reflecting on action taken in a group or by individuals and how those actions transform social relationships and contexts. Dialogue is

the exchange of equal partners in learning. Power/knowledge is a notion that describes the reciprocal and relational aspects of participants in a learning interaction, where developing practices and capabilities impact the future course of action and contexts. These theories share social critique as a central starting point for occupational health curriculum to address participation of workers and dialogue on cultural practices. At the turn of the 20th century settlement houses such as Jane Addams' Hull House were a locus of support and learning in immigrant communities. My colleagues and I have found the contemporary workers center movement to reflect this radical spirit in new community oriented ways where worker leaders develop to provide spaces for struggle, dialogue and praxis.

Global exchanges of people, knowledge, and products have impacted the economy, benefiting wealthy multinational corporations, and have had strong consequences for the position and power of workers. Neoliberal economic practices prioritize the short term profit maximizing needs of private sector employers and financial markets across national boundaries, weakening human rights standards for workers by disrupting government regulations and enforcement which results in conditions where workers are increasing vulnerable and disposable (Hoff & Hickling-Hudson, 2011). Some work can now be described as *precarious* (Quinlan, Mayhew & Bohle, 2001), where fewer wages, benefits and stable working conditions are expected, required or offered based the needs of the global economic system. Deaths and injuries for vulnerable workers are a tragic result of these trends.

Occupational health curricula for immigrant Latina/o workers in workers centers reflect the transnational experience of contemporary workers. Projects such the *More than Training* collaboration between New Labor, the Rutgers Occupational Training and Education Consortium, Latino Union, ARISE Chicago and the University of Illinois Chicago School of Public Health access and blend the cultural capabilities, languages and social resources from their places of origin with their developing skills in English and knowledge of the legal context of work in the U.S. as tools for how they find or create work for themselves here and how they respond to hazards (Schiller, Basch, & Blanc-Szanton, 1992). By providing open-ended dialogue and problem posing activities led by peer educators, we show that assumptions and notions of “acculturation” must be questioned when designing occupational health curriculum (Hunt, Schneider, & Comer, 2004; Viruell-Fuentes, 2007). By foregrounding practice and practical approaches to participants learning about safety, we minimized perspectives emphasizing U.S. legal structures. Not all workers plan to learn English, or put down roots here in efforts to assimilate to the dominant culture. Our occupational health training was created with

the openness that workers do not have to adopt the dominant culture view of life and power here in order to learn about health at work. Our more adaptive approach is for occupational health educators to partner with specific communities of workers to dialogue and create participatory training programs to meet the needs of their communities given the structure of regulation and resources that can be presented for their use and negotiation as workers first.

Workers live in multiple worlds with distinct social histories. Their conceptions of the world are formed through their social positions, across borders and generations (Gramsci, 1996; Smith, 2010; Zanoni, 2008b). For example, while some Latina/o immigrants are new arrivals to the U.S., many Latina/o workers are the children of immigrants, and relate to family members who have lived and worked in the U.S. for decades. Workers develop approaches and practices based on a social history that reflects a range of understandings and capabilities; workers then use and mix knowledge to fit the specific work context with its possibilities and expectations. Based upon the stability of the immigrants' family and the workers' documentation status, Latina/o workers may be able to take risks to question or demand health and safety protection from employers or to refuse unsafe work if it is offered to them. However, other workers may be driven by survival to accept work at any cost and may not be willing to confront employers based on threats to their immigration status. Workers' center organizers and leaders know this and practice this daily in approaches to create direct action through praxis. Occupational health curricula offered by peer educators in workers' centers presents the possibility for workers to consider and challenge content and practices that can be tested through the social support offered by the workers' center. Central to the curricula is how the trusted peer educators learn to balance disciplinary and experiential knowledge content and how this content impacts proposals for cultural practices.

Repertoires of cultural practices and occupational health curricula

Workers express a repertoire of cultural practices and not a uniform or monolithic culture (Gutierrez & Rogoff, 2003). This is the reason that the occupational health community cannot take standard U.S. English approaches to health protection curricula and simply translate them into other languages. Culture is not a formula, and workers cannot be defined in a way to make all group members the same in their difference, when contrasted with the dominant culture (Asher, 2007; Bhabha, 2004). Occupational health educator's partner with community based organizations and workers to decolonize efforts to disseminate mechanistic occupational health implementation. This dissemination may relate to content transfer approaches, intervention

designs and evaluation schema. Community leaders are not obsessed with disciplinary technical accuracy but become conversant in representations of safety practices to show alternative viewpoints for consideration of their peers. Often program dissemination scripts prioritize evidence based legitimation of "empowerment" inherently in conflict with community conceptualizations of agency. Educational partnerships discover the relevant language, processes, and practices to utilize communal ways of communicating and responding to design, debate and evaluate health protection curricula that can be recognized and relevant to distinct worker communities (O'Connor, 2003; O'Connor, Flynn, Weinstock, & Zanoni, in press). Furthermore, adaptive empirical approaches to educational evaluation, like the fidelity of implementation approach, is in harmony with theoretical frameworks as in ecologies of learning that seek to describe the complexity of social history and culture, how curriculum and educators are developed, and how to understand the impact of these learning exchanges on social practices and health (Century et al., 2010; Lee, 2010; Krieger, 2011).

Culture is linked with epistemology, the process of the creation and legitimation of knowledge. Workers need, create, and use knowledge as a social group. Occupational health educators that partner with immigrant communities see how knowledge and practices are created at the boundary between experiential knowledge and disciplinary knowledge. Experiential knowledge is open to all and can be evaluated based on the workers' own experiences. Peer educators at ARISE Chicago illustrated this process when they said that they would wait to see what answer the facilitator gave them before deciding how it related to their own experiential funds of knowledge.

A critical ethnographic approach may start with understanding how knowledge and practices are held and used in immigrant communities and the role of social agency in responding to learning and workplace hazards (Foley, 2002; Hurtig, 2008; Zanoni, 2008a). The dominant culture's assumptions of individualism and the role of knowledge for action limit the scope and potential impact of occupational health education. In the Latina/o community, an approach called "funds of knowledge" was developed by Gonzales and Moll (2002), Olmedo (1997) and their colleagues to show teachers that Latina/o students do not solely learn from books, or disciplinary knowledge, but rather from their parents, family members and ancestors through observation and participation in cultural practices. Knowledge is created, held, and shared in unique cultural relationships. Peer educators at Latino Union of Chicago spend time on the street corners where day laborers meet looking for work to learn about their lives and goals. Emphasizing relationships the peer educators will bring coffee and bread to share with

the men gathered there looking for work. They need to get to know them to develop trust in order to see what they can share.

Tuhiwai Smith (1999) proposed that study and respect for cultural relationships and histories are a first step in decolonizing approaches to inquiry in education and partnering with communities to learn the context of knowledge from indigenous peoples' perspectives. Cultural humility and listening to how indigenous peoples describe and organize their world views, priorities and rationales are means for occupational health educators to learn how to understand and explore where indigenous knowledge construction is localized and situated thereby proposing how dominant scientific perspectives may diverge from these or be bridged (Andreotti, 2011; le Grange, 2004; Tervalon & Murray-García, 1998). Approaches emphasizing and testing how individuals reproduce specific content ignore the social creation of knowledge, and the social support of praxis, the process of reflection and action, valued and evaluated in a social context.

An important source of cultural knowledge for workers is lived experience (Solórzano & Yosso, 2002). While workers may not have the resources, language, or supports to gain knowledge from dominant cultural institutions such as schools, they have their lived work, family, and social experiences as the basis for the knowledge that they create. de Certeau (1984) described the processes of valuing experiential knowledge as tactics that vulnerable workers may use to negotiate with and subvert the dominant culture. Modes of discourse and interaction can be promoted in educational interactions to honor and use experiential and cultural knowledge. In one informal chat session at San Lucas Workers Center in Humboldt Park, Chicago, participants who worked at a metal finishing shop brought in respirators stained with metal dust and dirt. They explained that they were told to wear and reuse these disposable masks and brought them in to show what their supervisors told them to do. While they knew it was wrong, they brought in the masks for the group to validate what they were up against.

Peer educators from ARISE Chicago leading small group construction safety sessions described how they responded to report backs of group discussion with a stance of openness to diverse views. They would allow the participants to share what they wanted without convincing them to agree to only one correct viewpoint. Gutiérrez, Baquedano-López, and Tejeda, (1999) explained how teachers of Latina/o students were adept at listening to the language and examples of in learning interactions and weaved standard knowledge and disciplinary concepts into their activities through their discourse that creates a *third space*, a space that spans or bridges experiential/cultural and disciplinary sources. Occupational health curricula designers

can utilize these approaches in their partnerships with communities by supporting the skill development of peer educators to promote dialogue and challenge the risk taking of Latina/o participants. Peer educators can develop skills in assessing how stable the planes of pedagogical practices are at a workplace and discover the extent of the risks and social support that workers can use and rely on in a workplace (Billett, 2002, 2008). The third space is the place for peer educators to see just how the propositions of health and safety practices may be accepted, challenged or rejected in the lived work experience of the participants.

Community-based cultural approaches to occupational health protection curricula need to take their places in concert with more traditional employer and union based approaches. The community is the most long-term and accessible relationship for immigrant Latina/o workers, and also most relevant for workers who are entering a community to seek work or are transitioning from one form of paid work to another. Given the increasingly contingent nature of work, and the forces of global competition, community-based support is where workers can both gain and share the skills and capabilities they need to protect themselves at work.

Popular education approaches promote dialogue and power sharing

Popular education approaches are based on the teaching of Paulo Freire (1970) who worked in Brazil and created literacy education programs that promoted dialogue and power sharing between participants. Social critique and transformation were the goals of these education programs; Freire (1970) created programs where participants could read the word and the world. Components of this approach included problem posing contrasted with problem solving, analysis of the root cause of conditions and sharing, and exchange between participants and teachers. How knowledge is used and created, who creates it, and for what purpose were all shifted in Freire's popular education approach. Participants were asked by the facilitators what they saw as the social problem they were trying to address, and then were supported in describing, critiquing, and analyzing various versions and perspectives that emerged, with a goal being collective responses. Freire contrasted popular education with the model he called “banking” education, where a knowledgeable expert would deposit knowledge into the minds of students, much like a person making a deposit of cash into a bank account. The banking model was seen as static, unidirectional, and reinforced the power of the expert, both as a source of knowledge and in the expert's role of replicating this knowledge.

Action and reflection, which Gramsci (1996) called praxis, is a central process in popular education. Curriculum is created in collaborative ways, and depicted as a spiral path where

practical action and reflection take place as the participants act in their lifeworlds and return to the education session to reflect on the impact of what they did and what it means for future action and learning (Arnold, Burke, James, Martin, & Thomas, 1991; Auerbach, 1992). The equal and democratic relationship between participants and learning facilitators expresses popular education (Darder, Torres, & Gutiérrez, 1997; Mayo, 1999; Smith-Maddox & Solórzano, 2002). Informal dialogue and discussion are the means for learning in interactive activities and facilitators are trained to lead and encourage this dialogue equally among participants.

A historical example of the use and purpose of popular education in the formation of a social movement in the U.S. is the curriculum that was developed at the Highlander Center in Tennessee. There, Miles Horton and other activists created popular education sessions in the 1960s that supported the development of the civil rights movement for racial justice. Creating social action to combat the racial segregation of the dominant society depended on the democratic relations activists established in the sessions, knowledge of how segregation was enforced, and discussions to develop strategies for sustainable action. The movement was fluid, the responses of the dominant society were harsh, and continual assessment and revaluation was needed to reflect upon the impact and need for new action. This example shows that popular education cannot be reduced to simply mean interactive activities in adult education. For worker health and safety, the creation of popular education in its most authentic form requires that curriculum activities are designed, presented and evaluated as a joint effort between communities that need capacities in occupational health, organizers workers in the communities, and occupational health experts willing to develop knowledge and practices outside disciplinary and institutional boundaries.

In occupational health there are many examples of how popular education approaches have led to curricula and structures to engage workers as trainers to lead and debrief training sessions to combat historical forms of vulnerability and disposability. The Oil, Chemical, and Atomic Workers (OCAW) Union under the leadership of Tony Mazzocchi designed union-based training programs for hazardous materials training that created the approach called the small group activity method (Slatin, 2001). Union workers in chemical processing plants learned from their co-workers, trained as facilitators, to lead group discussion in understanding the risks that they faced in their work, and in developing approaches and practices through union rights enacted in collective bargaining to take stands and actions in the workplace. Shop floor leaders in the role of union stewards brought their knowledge of the contract and frontline workers brought their knowledge of the jobs they performed. Together they learned the union structure

bargained with their employer and developing federal regulations emerging from the Occupational Safety and Health Administration (OSHA) inside the workplace and from the Environmental Protection Agency (EPA) outside the workplace to change the contexts of hazards and controls they faced on the job to address worker injury, illness and death.

In the contemporary period, vulnerability and disposability are taking on new forms in the social conditions related to the undocumented status of predominantly but not exclusively Mexican and other Latina/o workers and the poverty of low wage workers in the service, health care, agricultural, and food production industries. Partnerships between community-based organizations such as workers' centers, migrant clinics, unions, and researchers have utilized popular education approaches to create curricula and support facilitators to promote knowledge and skill development in workers.

In other realms of public health, these worker trainers may be called community health workers who serve as trainers, leaders, mentors, organizers, and facilitators in the communities to advocate for health. Sullivan and Siqueira (2009) reviewed the theoretical and practical bases for popular education as applied to partnerships addressing issues ranging from urban homelessness to musculoskeletal injuries in poultry processing workers. Forst et al. (2004) described a project utilizing *promotores de salud* for migrant workers where peer educators provided glasses and education for their peers planting or harvesting crops to protect them from acute eye injury and long-term eye diseases. The *promotores* learned how to identify hazards and conditions that lead to eye injury and illnesses and being co-workers, were working alongside their peers in the fields. Through analysis of post-training surveys, farmworkers showed significant eyewear use when they received glasses, training, and had the practice support from *promotores* in the field.

Day laborers, through workers centers, created a popular education approach to traditional OSHA 10 hour construction training in Spanish where workers earned their 10-hour cards. Though most were street corner day laborers continually moving where work could be found, they reported that they learned important safety practices and continued to ask questions and develop safety practices based on the approaches they learned in the session (Williams et al., 2010). Home care workers learned bloodborne pathogen knowledge and prevention practices related to needlestick and sharp exposure in large participatory sessions lead by union facilitators to protect themselves despite isolating working conditions (Amuwo, Sokas, Nickels, Zanoni, & Lipscomb, 2011). Commonalities in these diverse examples are the practical actions promoted in the sessions and the shifts related to power/knowledge. Participants used the

social and policy structures they had to leverage more control for themselves to move in a direction of health while they worked or sought options for work.

A post-colonial educational science of mediation

Colonialism is a living economic practice of exploitation and extraction taking new forms in the globalized economy. The neoliberal discourses emphasize evidence, standards and reproduction based on the need for global market exchanges. There is an imperative to know for what we are paying and receiving via metrics. The methodologies used to determine the legitimacy of knowledge are promoted as neutral in order persuade and inform discourses of investment and resource allocation. These trends and approaches dictate reform in education and government to ensure that market-oriented grades can be used to negotiate new social orders emphasizing private control of resources, minimize the cost of labor, and make labor ever more contingent, precarious and sensitive to the demands of the investment system. Calls for life-long learning and educational relevancy are expected to be followed based on the threat of the global market and the possibility that a worker could be replaced at any moment by someone who will work harder and produce more for less (Banks et al., 2007).

Science has been used at various moments by investment elites and foundations to rationalize and systematize extraction of resources and domination of labor resources (Watkins, 2005). Anthropology was one of the sciences deployed upon indigenous peoples in certain timeframes as simultaneous depiction of exotica and a pathway for establishing dominance in colonial lands. Said (1979) described how western social science was purposeful in constructing methods to "other" "orientals" in order to differentiate and subjugate peoples and their knowledge to western assumptions, desires and dominance. Education was then established for colonial peoples that instilled and replicated the power hierarchies of White supremacy and reproduced meritocracies based on both the legitimacy and process of dominant and supposedly advanced knowledge (Tuhiwai Smith, 1999).

As a critique of colonial knowledge and approaches, an intentional educational science of mediation is being practiced to both describe native cultural funds of knowledge and ways of examining their workings in partnership. Contemporary ethnography has been used by Choudry et al. (2009) to show that immigrant workers in Canada expend effort learning what it means to be positioned as an immigrant in the market, and often this entails lowering their hopes and expectations for their full participation to that of marginal, low wages, and contingent employment as they enter this new society. This is an example of the ways that immigrants are

constituted as subjects in contemporary western societies and how the global market forces dictate their positioning to benefit finance capital and extraction (Foucault, 1980).

Occupational health educators can take a path in partnerships with communities to disrupt colonial processes embedded in dominant institutional practices (Andreotti, 2011; Hickling-Hudson, 2011; Hoff & Hickling-Hudson, 2011). Understanding and responding to unique, local social and cultural histories of communities is part of recognizing and honoring a social ecology of learning. Exploring the possibilities of human ecology expressed in relationship to learning means looking at the social environment in which the relationships take place, the positioning and reciprocity of the players, and how learning exchanges enhance the vitality of all participants (Gutiérrez, 2008; Gutiérrez, Morales, & Martinez, 2009; Lee, 2010). To promote the conscious, unique perspectives, and repertoires of cultural practice at play between those that want to learn, and those that have something to share, requires an educational science of mediation (Luke, 2011). Given the social pressure of isolation, fear, punishment, and blame that is directed thorough dominant social discourses to low wage and immigrant workers, social organizations such as unions, workers centers, and hometown associations take the role of a safe haven for workers to build trust, capabilities and relations. At ARISE Chicago worker leaders decided to focus on depression that results from their experiences at work for their *charlas;* when we thanked them for participating in the sessions, they thanked us for listening and documenting their experiences.

In partnership with disciplinary resources such as government agencies and researchers, spaces can be established were participants can learn, on their own terms, what is useful and meaningful for them in navigating, negotiating, and forging lives and identities. These spaces mediate multiple realms of power such as the legal, educational and governmental institutions. Mediation may take place through emerging or translational funds of knowledge, where generations of immigrants share their knowledge and perspectives on how to survive and thrive in the U.S. An educational science of mediation would emphasize cool applications of curricula and prioritize peer educator capability and development, emphasizing and describing local settlements that illuminate how local social histories and community's access resources promote or hinder the occupational health and experience of workers (Luke, 2011).

A stance of mediation supports educators to critique recent conflicts between the National Institute for Occupational Safety and Health (NIOSH) and authors in the scientific community around constructs of effectiveness and rigor related to empowerment and

engagement of participants in occupational health curricula. This debate takes of the form of systematic reviews of scientific literature reporting evaluation effects of occupational health education programs displaying the inner workings of an educational science of extraction and optimization. A panel of experts designed systematic reviews to abstract the theory and practice of learning across multiple intervention studies with the goal of rising above human bias to objectively describe replicable generalized phenomenon related to participant empowerment and engagement to achieve desired occupational health outcomes.

In short, the principle that more engaging and participatory occupational health training led to stronger positive health effects for participants shown by Burke et al. (2006) in their systematic review was challenged by a team of NIOSH and Canadian scientists using the filter of randomized control trials in their review (Robson et al., 2010). Examples of engagement and empowerment education are participatory small group activity method sessions led by trained peer facilitators for dominant culture unionized workers and for Latina/o immigrant workers (Daltuva, Williams, Vazquez, Robins, & Fernandez, 2004; Lippin, Eckman, Calkin, & McQuiston, 2000: Slatin, 2001). The NIOSH experts dismissed Burke and colleague's presentation of peer reviewed evidence by stating that they could neither prove nor describe the replicable mechanisms by which engagement produced its effect. They cast doubt on the relationship between conceptualizations of engagement, empowerment and positive health outcomes, though in fairness called for more research on education in occupational health to understand processes more rigorously.

Many elements of the Robson et al. (2010) model used for their review of occupational health educational interactions are troubling: the space itself for learning is never identified, the paths are predominantly in one direction, learning is not reciprocal, and the social context of learning is absent in place of individual factors. This absence of the social context is directly opposed to a notion of social ecology presented by Murray (2011) that positions the social at the heart of radiating relationships, with the individual at periphery. The Robson model is more aligned with a Fordist flowchart of industrial production than with a complex human ecological system such as Krieger's (2011) eco-social perspective. Ironically, the doubts about engagement and empowerment Robson and colleagues promote are similar in stance to corporate entities that seek to challenge and dilute scientific results, not through a paradigm shift, but through devaluing the legitimacy of empirical findings and conclusions through the rationale of higher methodological rigor (Michaels, 2008).

What is at stake are the resources and attention needed for an educational science of mediation related to occupational health to address the death disparity. A reconstructionist view of curriculum presents education as an inherently human process with conscious actors and exchanges between learners and learning facilitators to address inequity through the construction of knowledge that may never exclude the subjective perspectives and bias of the participants (Schubert, 1986). A human social ecology of learning seeks to decolonize dissemination by turning the focus away from decontextualized and replicable mechanisms to understanding the contemporary confluence of media, transnational hybridity and the active role that learners have across languages and cultures to use cultural capacities to design and re-design their lifeworlds (New London Group, 1996). Occupational health educators explore and document what these communities need to know, in ways that they can trust and teach each other, to support and sustain occupational health practices in the face of unemployment, contingency, and threat of deportation (De Genova, 2005). Skilled peer educators understand the risks of illegality to the agency of Latina/o workers and in dialogue with them discuss the challenges of applying health and safety standards to their work. Evaluation of the curricula can show how the peer educators can move from transferring knowledge content and rights to promoting awareness of the risks and support available to workers and how they can move toward more social support to enact health and safety standards at work.

Conclusion: The active role of workers guided by frameworks of fidelity of implementation

Education to confront occupational health disparities needs to address evaluation and documentation of effects and impacts of training interventions to describe how they worked and how well they worked to turn the tide of death, injury and illness. Given the discussion here about the need for workers and community organizations to partner with the occupational health community to develop programs, critical, post-colonial theories of workplace curricula and evaluation are offered as tools to evaluate how the curricula were designed, how facilitators were chosen and supported, how the events manifested through the interactions of participants and the impact of their learning on their rationales and practices.

A fidelity of implementation (FOI) framework for evaluation honors the consciousness, reflection and capacity of curricula developers, learning facilitators, and participants across two domains: structural critical components describing logistics (procedural) and specific disciplinary content knowledge (educative), and instructional critical components related to the skill of

facilitators in teaching (pedagogical), and supporting participant interaction (student engagement) (Century et al., 2010). Utilizing this framework partners can begin to describe and assess how the curricula addresses structures of support for knowledge and practices, how well the facilitators learn and perform capacities to promote exchange, how well the participants actively respond to the learning activities and ultimately how this learning encourages practices in the field.

Dialogue and risk taking are two central processes to be examined in the FOI approach and relate to our discussion of popular education, discourse, and cultural practices for learning. Risk taking means that learning participants are willing to take a risk in describing or using new content information or practices to plan or demonstrate how they would approach a situation or problem such as assessing an exposure on the job or creating a protective response. One example of this is a role play that is used in the *More than Training* Curriculum; participants take roles of someone offering work, and someone willing to work, discussing the task with hazards of to health and safety as one element of the job. The peer educators at *Voces de la Frontera* in Milwaukee were so convincing in their harshness as bosses to make the training room silent as the participants anticipated what the players would say back to them. A lively discussion ensued based on what workers may say, what to expect and how to support each other.

Participants can then take risks in asking questions and stating conditions they need to work more safely in the context of the training. Participant dialogue and risk-taking about working tasks and conditions also shows how planes of workplace pedagogical practices interact to honor and reflect what workers have learned in their experience on the job, how they can be coached by more experienced workers in the role of facilitators and how this learning can be transferred to new situations (Billett, 2002, 2008). Communities and community-based organizations need to be engaged and bring their voices to the process. In the absence of strong unions or seasoned workers in traditional industrial workplaces, worker leaders explore roles and action as peer educators and community health workers in occupational health. Their actions could establish community codes of conduct and provide contexts of support for immigrant and low-wage workers in unstructured, informal and contingent contexts where institutional support for worker protection is minimal (Perez & Martinez, 2008; Rhodes, Foley, Zometa, & Bloom, 2007).

Regarding regional and national policy outcomes based on this discussion, more funding and efforts should be placed in how community-based organizations such as workers' centers can take roles in promoting trusted peer educators to reach immigrant and low-wage workers to

create and test sustainable programs to promote occupational health knowledge and practices in the workers themselves and not solely though employer standard enforcement and power relationships. Examples include how national organizations, such as the National Day Labor Organizing Network and Interfaith Worker Justice, are supporting trusted peer educators to promote dialogue and risk taking with community worker participants, through their networks of workers centers (National Day Laborer Organizing Network Health and Safety, 2013; Worker Center Network Health and Safety, 2013). Through OSHA Susan Harwood funding, these national organizations are expanding the planes of workplace pedagogical practices for immigrant and day laborers in constantly changing employment relationships to place the community organization as the constant for the workers and to communicate directly with them through means of culturally relevant occupational health curriculum. The outcome evaluations of these projects describe a paradigm shift in funded interventions directing more resources away from traditional institutions and toward community-based partnerships that recognize the dialogue and risk taking that community-based peer educators perform best.

References

Amuwo, S., Sokas, R. K., Nickels, L., Zanoni, J., Lipscomb, J. (2011). Implementation and evaluation of interventions for home care aides on blood and body fluid exposure in large group settings. *New Solutions*, *21*(2), 235-250. DOI: 10.2190/NS.21.2.g.

Andreotti (de Oliveira), V. (2011). *Actionable postcolonial theory in education.* New York, NY: Palgrave Macmillan.

Arnold. R., Burke, B., James, C., Martin, D., and Thomas, B. (1991). *Educating for a change*. Toronto, Ontario, Canada: Between the Lines.

Asher, N. (2007). Made in the (multicultural) U.S.A.: Unpacking tensions of race, culture, gender, and sexuality in education. *Educational Researcher, 36*(2), 65-73. DOI: 10.3102/0013189X07299188

Auerbach, E. R. (1992). *Making meaning, making change.* McHenry, IL: Center for Applied Linguistics and Delta Systems.

Banks, J., Au, K., Ball, A., Bell, P., Gordon, E., & Gutiérrez, K., (2007). *Learning in and out of school in diverse environments: Life-long, life-wide, life-deep* (No. 21). Seattle, WA: The Learning in Informal and Formal Environments Center and the Center for Multicultural Education, University of Washington.

Bhabha, H. K. (2004). *The location of culture*. New York, NY: Routledge.

Billett, S. (2002). Toward a workplace pedagogy: Guidance, participation and engagement. *Adult Education Quarterly, 53*(1), 27-43. DOI: 10.1177/074171302237202

Billett, S. (2008). Participation and learning in turbulent times: Negotiations between the community and the personal. In K. Church, N. Bascia, & E. Shragge (Eds.), *Learning through community: Exploring participatory practices* (pp. 21-34). United Kingdom: Springer.

Bobo, K. (2009). *Wage theft in America: Why millions of working Americans are not getting paid—and what we can do about it.* New York, NY: The New Press.

Burke, M. J., Sarpy, S. A., Smith-Crowe, K., Chan-Serafin, S., Salvador, R. O., & Islam, G. (2006). Relative effectiveness of worker safety and health training methods. *American Journal of Public Health, 96*(2), 315-324.

Century, J., Rudnick, M., & Freeman, C. (2010). A framework for measuring fidelity of implementation: A foundation for shared language and accumulation of knowledge. *American Journal of Evaluation, 31*(2), 199-218. DOI: 10.1177/1098214010366173

Choudry, A., Hanley, J., Jordan, S., Shragge, E., & Stiegman, M. (2009). *Fight back: Workplace justice for immigrants.* Blackpoint, Nova Scotia, Canada: Fernwood Publishing.

Cierpich, H., Styles, L., Harrison, R., Davis, L., Chester, D., Lefkowitz, D. (2008). Work related injury deaths among Hispanics---United States, 1992--2006. *Morbidity and Mortality Weekly Report, 500*(57), 22.

Daltuva, JA, Williams M, Vazquez L, Robins TG, Fernandez JA. (2004). Worker-trainers as evaluators: A case study of union-based health and safety education program. *Health Promotion Practice, 5,* 191-198.

Darder, A., Torres, R. D., & Gutiérrez, H. (Eds.). (1997). *Latinos and education: A critical reader*. New York: Routledge.

De Genova, N. (2005). *Working the boundaries: Race, space, and "illegality" in Mexican Chicago*. Durham, NC: Duke University Press.

de Certeau, M. (1984). *The practice of everyday life.* Berkeley, CA: University of California Press.

Fine, J. (2006). *Worker centers: Organizing communities at the edge of the dream.* Ithaca, NY: ILR Press.

Foley, D. E. (2002). Critical ethnography: The reflexive turn. *International Journal of Qualitative Studies in Education, 15*(4), 469-490. DOI**:**10.1080/09518390210145534

Forst, L., Avila, S., Anozie, S., & Rubin, R. (2010). Traumatic Occupational Injuries in Hispanic and Foreign Born Workers. *American Journal of Industrial Medicine, 53,* 344-351. DOI:10.1002/ajim.20748

Forst, L., Lacey, S., Chen, H. Y., Jimenez, R., Bauer, S., Skinner, S., & Alvarado, R. (2004). Effectiveness of community health workers for promoting use of safety eyewear by Latino farm workers. *American Journal of Industrial Medicine, 46*(6), 607-613.

Foucault, M. (1980). In Gordon C. (Ed.), *Power/knowledge: Selected interviews and other writings, 1972-1977*. New York: Pantheon Books.

Freire, P. (1970). *Pedagogy of the oppressed* (M. B. Ramos Trans.). New York: Continuum.

Gramsci, A. (1996). In Joseph Buttigieg (Ed. & Trans.), *Prison notebooks, volume 2.* New York: Columbia University Press.

González, N., & Moll, L. C. (2002). *Cruzando el puente*: Building bridges to funds of knowledge. *Educational Policy, 16*(4), 623-641. DOI: 10.1177/0895904802016004009

Gutiérrez, K., Baquedano-López, P., & Tejeda, C. (1999). Rethinking diversity: Hybridity and hybrid language practices in the third space. *Mind, Culture, and Activity, 6*(4), 286-303. DOI**:**10.1080/10749039909524733

Gutiérrez, K. D., & Rogoff, B. (2003). Cultural ways of learning: Individual traits or repertoires of practice. *Educational Researcher, 32*(5), 19-25.

Gutiérrez, K. D. (2008). Developing a sociocritical literacy in the third space. *Reading Research Quarterly*, *43*(2),148–164.

Gutiérrez, K. D., Morales, P. Z., & Martinez, D. C. (2009). Remediating literacy: Culture, difference, and learning for students from nondominant communities. *Review of Research in Education, 33*, 212-245. DOI: 10.3102/0091732X08328267

Hickling-Hudson, A. (2011). Teaching to disrupt preconceptions: Education for social justice in the imperial aftermath. *Compare, 41*(4), 453-465. DOI:10.1080/03057925.2011.581513

Hoff, L., & Hickling-Hudson, A. (2011).The role of international non-governmental organizations in promoting adult education for social change: A research agenda. *International Journal of Educational Development*, 31, 187-195.

Hunt, L. M., Schneider, S., & Comer, B. (2004). Should “acculturation” be a variable in health research? A critical review of research on US Hispanics. *Social Science & Medicine, 59*(5),973-986. DOI:10.1016/j.socscimed.2003.12.009

Hurtig, J. (2008). Community writing, participatory research, and an anthropological sensibility, *Anthropology & Education Quarterly, 39*(1), 92-106. DOI:10.1111/j.1548-1492.2008.00007.x.

Krieger, N. (2010). Workers are people too: Societal aspects of occupational health

disparities—an ecosocial perspective. *American Journal of Industrial Medicine, 53*, 104-115. DOI: 10.1002/ajim.20759

Krieger, N. (2011). *Epidemiology and the people's health: Theory and context.* New York: Oxford University Press.

le Grange, L. (2004). Ignorance, trust and educational research. *Journal of Education*, *33*, 69-84.

Lee, C. (2010). Soaring above the clouds, delving the ocean's depths: Understanding the ecologies of human learning and the challenge of educational science. *Educational Researcher, 39*(9), 643-655. DOI: 10.3102/0013189X10392139

Lippin, T., Eckman, A., Calkin, K.R., McQuiston, T.H. (2000). Empowerment-based health and safety training: Evidence of workplace change from four industrial sectors. *American Journal of Industrial Medicine, 38*, 697-706. DOI: 10.1002/1097-0274

Luke, A. (2011). Generalizing across borders: Policy and the limits of educational science. *Educational Researcher, 40*(8), 367-377. DOI: 10.3102/0013189X11424314

Mayo, P. (1999). *Gramsci, Freire and adult education: Possibilities for transformative action*. London: Zed Books.

Michaels, D. (2008). *Doubt is their product: How industry's assault on science threatens your health.* New York: Oxford University Press.

Murray, L. R. (2003). Sick and tired of being sick and tired: Scientific evidence, methods, and research implications for racial and ethnic disparities in occupational health. *American Journal of Public Health, 93*(2), 221-226.

Murray, L. R. (2011, February). *Acting like we bulletproof.* Keynote address presented at 3rd Annual University of Illinois at Chicago School of Public Health, 2011 Minority Health in the Midwest Conference, The Promise of Health Equity: Advancing the Discussion to Eliminate Disparities in the 21st Century, Chicago, IL.

National Day Laborer Organizing Network Health and Safety. (2013, January 7). Retrieved from http://www.ndlon.org/en/program-areas/health-safety

New London Group. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review, 66*(1), 60-92.

Ochsner, M., Marshall, E., Martino, C., Casillas Pabelón, M., Kimmel, L., & Rostran, D. (2012). Beyond the classroom—A case study of immigrant safety liaisons in residential construction. *New Solutions, 22(3)*, 365-386.

O'Connor, T. (2003). Reaching Spanish-speaking workers and employers with occupational safety and health information. Appendix F, *Safety is seguridad* (pp. 93). Washington, D.C.: National Academies Press.

O'Connor, T, Flynn, M., Weinstock, D., & Zanoni, J. (in press). Education and Training for Underserved Populations. *American Journal of Industrial Medicine.*

Olmedo, I. M. (1997). Voices of our past: Using oral history to explore funds of knowledge within a Puerto Rican family. *Anthropology & Education Quarterly, 28*(4), 550-573.

Perez, L. M., & Martinez, J. (2008). Community health workers: Social justice and policy advocates for community health and well-being. *American Journal of Public Health, 98*(1),11-14.

Quinlan, M., Mayhew, C., & Bohle, P. (2001). The global expansion of precarious employment,

work disorganization, and consequences for occupational health: A review of recent research. *International Journal of Health Services, 31*(2), 335-414.

Rhodes, S. D., Foley, K. L., Zometa, C. S., & Bloom, F. R. (2007). Lay health advisor interventions among Hispanics/Latinos A qualitative systematic review. *American Journal of Preventive Medicine, 33*(5), 418-427. DOI:10.1016/j.amepre.2007.07.023

Robson, L., Stephenson, C., Schulte, P., Amick, B., Chan, S., Bielecky, A., Wang, A., Heidotting, T., Irvin, E., Eggerth, D., Peters, R., Clarke, J., Cullen, K., Boldt, L., Rotunda, C., & Grubb, P. (2010). *A systematic review of the effectiveness of training and education for the protection of workers.* Toronto, Ontario, Canada: Institute for Work and Health.

Rouse, J. (1994). Power/Knowledge. In G. Gutting (Ed.), *The Cambridge companion to Foucault* (pp. 92-105). New York: Cambridge University Press.

Said, E. W., (1979). *Orientalism.* New York: Vintage Books-Random House.

Schiller, N. G., Basch, L., & Blanc-Szanton, C. (1992). Transnationalism: A new analytic framework for understanding migration. *Annals of the New York Academy of Sciences, 645*,1-24.

Schubert, W. H., (1986). *Curriculum: Perspective, Paradigm and Possibility.* New York: Macmillan.

Singley, C. (2009). *Fractures in the foundation: The Latino worker's experience in an era of declining job quality*. Washington, D.C.: The National Council of La Raza.

Slatin, C. (2001). Health and safety organizing: OCAW's worker-to-worker health and safety training program. *New Solutions, 11*(4), 349-374.

Smith, K. (2010). Gramsci at the margins: Subjectivity and subalternity in a theory of hegemony. *International Gramsci Journal, 2*, 39-50.

Smith-Maddox, R. & Solórzano, D. G. (2002). Using critical race theory, Paulo Freire's problem-posing method, and case study research to confront race and racism in education. *Qualitative Inquiry, 8*(1), 66-84.

Solórzano, D. G., & Yosso, T. J. (2002). A critical race counterstory of race, racism, and affirmative action. *Equity & Excellence in Education : University of Massachusetts School of Education Journal., 35*, 155-168.

Sullivan, J., & Sigueira, C. E. (2009). Popular arts and education in community based participatory research: On the subtle craft of developing and enhancing channels for clear conversations among CBPR partners. *New Solutions, 19*(4), 399-406.

Tervalon, M., & Murray-García, J. (1998). Cultural humility versus cultural competence: A critical distinction in defining physician training outcomes in multicultural education. *Journal of Health Care for the Poor and Underserved, 9(2)*, 117-125.

Tuhiwai Smith, L. (1999). *Decolonizing methodologies: Research and indigenous peoples*. London: Zed Books.

Viruell-Fuentes, E. A. (2007). Beyond acculturation: Immigration, discrimination, and health research among Mexicans in the United States. *Social Science & Medicine, 65*(7), 1524-1535.

Watkins, W. H. (2005). A Marxist and radical reconstructionist critique of American education.

In W. H. Watkins (Ed.), *Black protest thought and education* (pp. 107-135). New York: Peter Lang.

Williams, Q., Ochsner, M., Marshall, E., Kimmel, L, & Martino, C. (2010). The impact of a peer-led participatory health and safety training program for Latino day laborers in construction. *Journal of Safety Research, 41*, 253-261.

Worker Center Network Health and Safety. (2013, January 7). Retrieved from http://www.iwj.org/worker-center-network/health-safety

Zanoni, J. (2008a). Dialogue and hegemony: Sociolinguistic analysis of "*charla*s" for critique and praxis. *Mediterranean Journal of Educational Studies*, *13*(1), 39-58.

Zanoni, J. (2008b). Antonio Gramsci and funds of knowledge: Organic ethnographers of knowledge in workers' centers. *International Gramsci Journal*, *1*, 1-35.