Invited Article

Changing Demographics in the United States and Its Expected Impact on Workplace Learning

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Abstract

Over the next decade, the proportion of Hispanics and African Americans in the United States workforce will continue to rise dramatically due to the retirement of the baby boomers and changes to the overall population. Data from the Bureau of Labor Statistics, the Census, and the National Center for Education Statistics indicate that persons of color are currently more likely to be channeled into lower paying, entry level jobs than Whites or Asians or more likely to be unemployed. Therefore, with increasing numbers of workers of color, it will be up to adult educators to work to remove systemic barriers that prevent these workers from moving into better paying jobs in the future.

Changing Demographics in the United States and Its Expected Impact on Workplace Learning

Before I became an adult educator, I spent 27 years in the chemical industry as an engineer. I still consult; working primarily with companies to improve their safety performance. In 2009, I was asked to consult with a firm which I will call Lanolotion. Lanolotion had what they considered a regulatory problem. In the past, they had compounded lotions and creams for numerous companies. Because of demand, they had started producing new sanitizers. Hand sanitizers are made with ethanol, a flammable liquid which requires special instrumentation, equipment, and handling. Of course, the physical changes to the plant required training for the workers.

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At the same time, the management was faced with another challenge. By inventorying more than 10,000 pounds of ethanol, they were now regulated under OSHA regulations for Process Safety Management of Highly Hazardous Chemicals (1992). These regulations included prescriptions regarding employee procedures and training.

Lanolotion was a labor intensive organization and worked to keep costs down by hiring minimally skilled workers and paying them low wages. In their case, this meant most of their workers spoke Spanish. When asked, the management was not sure how many of the workers could even read or write. Written records were kept by the line supervisors, who were promoted from the workers after passing a test written by management. All of the supervisors were men and 80% of all workers were male.

The training for the workers was all done in the field with the equipment and a check-off list. The trainers were provided a set of skills to teach the workers and the workers had to return demonstrate the skills. All records, procedures and computer displays were in English.

Within six months of starting production of the sanitizer products, Lanolotion had experienced two explosions. The workers figured out that they could bypass a clunky piece of piping to add the ethanol to a tank much quicker. Bypassing this pipe sped production and made the job easier. Unfortunately, it also allowed the ethanol to fall freely into the tank and "free-falling" flammables can spark and detonate. Most of the time this doesn't happen; but sometimes it does. In these two cases, the only injuries were sudden baldness, shame and some first- and second-degree burns. Easily, it could have killed the workers if they had been standing in a different position.

After the first incident, Lanolotion discharged the workers who took the short cuts and retrained all remaining ethanol workers. After the second incident, they took the same steps and called us in to help explore why their workers had such a poor "safety culture." As you might guess, I saw the problem as the lack of a "learning culture." I assumed that these folks never understood the risks they were taking when they took the short cuts and that they thought they were doing everyone a favor by decreasing cycle time (and therefore increasing overall productivity).

In any event, Lanolotion highlights many of the drivers that face the workplace today. Here are a few.

- Demand changes. Competition will force your organization to evolve and change the way it works over the next few years.

That means that you will need new equipment, software, procedures, organizational structures, and communication flows.

- Technology changes. Even if you wanted to remain stagnant, you could not. Try buying an IBM AT or a copy of dBase III today, if you even know what those technologies are. Whether we are ready or not, it seems like we are forced to learn ever-changing technology.
- Regulatory changes. Although the OSHA legislation faced by Lanolotion was passed in 1996, they did not have to comply with it until their business model changed in 2008. Almost every workplace has laws and regulations with which to comply and these regulations are subject to change.
- Demographic changes. Our country's population is changing. The fastest growing ethnic group is Hispanic or Latino. More women are in the workplace. Workers are retiring later. The educational background of workers is changing. All of these factors are having a tremendous impact on the workplace.

I could devote an entire paper to a discussion of Lanolotion but I will return to their case only briefly in closing. Nevertheless, their case will help to support some of the arguments that I intend to make.

Demographic Changes

The face of America is changing. We are getting older, becoming more multicultural, and a higher proportion of us are speaking something other than English in our day-to-day lives. This will impact the ways that workplace learning takes place over the next few decades. As we shall see, not only does it affect the nuts and bolts of training and development, but adult educators will need to be advocates for social change in the workplace to ensure that system barriers do not become (remain) instruments of oppression within the workplace.

Ethnicity

From 2000 to 2010, the population of the United States grew 9.7% (Humes, Jones, & Ramirez, 2011) but the growth was not uniform (Table 1). The proportion of Hispanics in the United States grew from 12.5% to 16.3% during that time frame (a 43% growth rate) making them a larger minority group than African Americans. (Of course, it can be argued that Hispanics or Latinos do not represent a monolithic minority group.

Table 1

Race and Ethnicity in the United States (numbers in thousands)
(Source: Humes, Jones, & Ramirez, 2011)

	2010		2011		2010- 2011	
Ethnicity	**Pop.**	**%**	**Pop.**	**%**	**N**	**%**
Hispanic	35,305	12.5%	50,477	16.3%	15,171	43.0%
Non-Hispanic	246,552	87.5%	258,267	83.7%	12,151	4.9%
Race						
White	211,460	75.1%	223,553	72.4%	12,092	5.7%
Black or						
African American	34,658	12.3%	38,929	12.6%	4,271	12.3%
American Indian						
and Alaska Native	2,475	0.9%	2,932	0.9%	456	18.4%
Asian	10,242	3.6%	14,676	4.8%	4,431	43.3%
Native Hawaiian						
and Other Pacific						
Islander	398	0.1%	540	0.2%	141	35.4%
Some Other Race	15,359	5.5%	19,107	6.2%	3,748	24.4%
Two or More						
Races	6,826	2.4%	9,009	2.9%	2,182	32.0%
Total Population	281,421	100.0%	308,745	100.0%	27,323	9.7%

This is one of many hazards when writing about ethnicity or race.) Another group that is rapidly growing is the Asian population of the United States which grew by 43.3% during this ten-year period. Whites, as a group, had the slowest growth rate at 4.9% but still represent the largest racial group in the U.S. (72.4%) (Humes, et al, 2011).

The number of people self-identifying as coming from two or more racial backgrounds continues to grow rapidly (Humes, et al, 2011). However, this group still accounts for only about 9.7% of the total population.

The workforce, however, is not an even representation of the general population, particularly when looking at recent unemployment rates. As Table 2 illustrates, in 2011 being White greatly reduced your chances of being unemployed. Hispanics were facing unemployment rates of 11.5%, Blacks were facing rates of 15.8%, Native Americans had rates of 15.8% and Whites had rates of 8%.

By inspection, this table shows that unemployment is much higher for African-Americans (15.8%), American Indians and Alaska Natives

Table 2.
Civilian Workforce by Race and Ethnicity (numbers in thousands) (Source: Bureau of Labor Statistics, 2012)

	Population	Civial Labor Force		Employed		Unemployed		Labor Force
		Total	Percent of Pop.	Total	Percent of Pop.	Total	Percent og Pop.	
Ethnicity								
Hispanic	34,438	22,898	66.5%	20,269	58.9%	2,629	11.5%	11,540
Non-Hispanic	205,180	130,719	63.7%	119,600	58.3%	11,119	8.5%	74,461
Race								
White	193,077	124,579	64.5%	114,690	59.4%	9,869	7.9%	68,498
Black or African American	29,114	17,881	61.4%	15,051	51.7%	2,831	15.8%	11,233
American Indian and Alaska Native	1,999	1,182	59.2%	1,010	50.5%	172	14.6%	816
Asian	11,439	7,386	64.6%	6,867	60.0%	518	7.0%	4,054
Native Hawaiian and Other Pacific Islander	633	439	69.4%	393	62.2%	46	10.4%	193
Two or More Races	3,356	2,148	64.0%	1,857	55.3%	292	13.6%	1,207
Total Population	239,616	153,617	64.1%	139,869	58.4%	13,747	8.9%	86,001

(14.6%), Hispanics (11.5%) and Native Hawaiians and Other Pacific Islanders (10.4%) than it is for Whites (7.9%) and Asians (7.0%).

Now that we have established that the demographic diversity of the U.S. is changing, how is this related to workplace learning? The most obvious impact is language. According to the U.S. Census Bureau (2010), in 2000, there were about 46 million individuals who spoke a language other than English at home. Not surprisingly, the most common language for these individuals was Spanish, with over 26 million individuals speaking Spanish at home. According to this same report (U.S. Census Bureau, 2010), about 50% of these speakers could speak English "very well." The other languages with over a million speakers were Chinese, French, German, Tagalog, Vietnamese, and Italian. The largest groups of speakers who self-identified as speaking English "Not Well" or "Not at All" were Spanish, Chinese, Vietnamese, Korean, French, and Russian.

Education

It is often cited that a reason to continue education is to get a good job and make more money. At least that is what my parents told me. Data from the Bureau of Labor Statistics (BLS) (2010) continue to back that up. According to the BLS, you are at least three times more likely to be unemployed if you lack a high school diploma than someone with a bachelor's degree or higher (See Table 3). Also, according to the BLS (2010), employees with a bachelor's degree generally make more than twice what folks lacking a high school diploma can expect to make (see Table 4).

These data are a strong endorsement for encouraging young people to stay in college. However, they are data that apply to our adult population and, as adult educators, these data should be taken into account when we plan where we want to focus our efforts. The employers in the United States value educated workers.

Table 5 provides data showing a cross-tabulation of the highest educational attainment by race/ethnicity for 1996, 2000, 2004, and 2008 (Aud, Fox, & KewalRamani, 2010). It shows that Whites are far more likely to have a bachelor's degree or higher than any other group (except Asians or Pacific Islanders). As we have established, education is apparently a means to employment and higher income. Therefore, the lack of education presents a systemic barrier to African-American, Hispanic, and Native American adults in the workplace.

Table 3
Unemployment Rates for People 25 Years and Over by Educational Attainment and Older (Source: BLS, 2010, Back to College: Spotlight on Statistics)

Year	Less than a High School Diploma	High School Graduate, no College	Some College or Associate or Higher	Bachelor's Degree or Higher
1992	11.5	6.8	5.6	3.2
1993	10.8	6.3	5.2	2.9
1994	9.8	5.4	4.5	2.6
1995	9.0	4.8	4.0	2.4
1996	8.7	4.7	3.7	2.2
1997	8.1	4.3	3.3	2.0
1998	7.1	4.0	3.0	1.8
1999	6.7	3.5	2.8	1.8
2000	6.3	3.4	2.7	1.7
2001	7.2	4.2	3.3	2.3
2002	8.4	5.3	4.5	2.9
2003	8.8	5.5	4.8	3.1
2004	8.5	5.0	4.2	2.7
2005	7.6	4.7	3.9	2.3
2006	6.8	4.3	3.6	2.0
2007	7.1	4.4	3.6	2.0
2008	9.0	5.7	4.6	2.6
2009	14.6	9.7	8.0	4.6

Table 4
Median Usual Weekly Earnings of Full-Time Wage and Salary Workers, 25 Years and Over by Educational Attainment and Older (Source BLS, 2010, Back to College: Spotlight on Statistics)

Year	Less than a High School Diploma	High School Graduate, no College	Some College or Associate or Higher	Bachelor's Degree or Higher
2005	$409	$583	$670	$1,013
2006	$419	$595	$692	$1,039
2007	$428	$604	$704	$1,072
2008	$453	$618	$722	$1,115
2009	$454	$626	$726	$1,137

Table 5.
Distribution of Adults, 25 Years or Older, by Highest Level of Educational Attainment by Race/Ethnicity (Source: Aud, Fox, & KewalRamani, 2010)

Race	Less Than High School Degree	Completed High School	Some College	Associate's Degree	Bachelor's Degree	Master's Degree	Doctorate
Total							
1996	18.3	33.6	17.3	7.2	15.8	5.4	2.4
2000	15.9	33.1	17.6	7.8	17.0	5.9	2.6
2004	14.8	32.0	17.0	8.4	18.1	6.7	2.9
2008	13.4	31.2	17.2	8.8	19.1	7.5	2.8
White							
1996	14.0	34.7	17.8	7.6	17.2	6.0	2.7
2000	11.6	34.1	17.9	8.4	18.6	6.5	2.9
2004	10.0	32.8	17.6	9.0	19.8	7.6	3.2
2008	8.5	31.6	17.9	9.3	21.1	8.4	3.1
Black							
1996	25.4	35.3	18.8	6.7	10.1	2.9	0.8
2000	21.1	35.3	20.1	6.8	11.5	4.2	0.9
2004	18.9	36.2	19.3	7.9	12.4	4.1	1.2
2008	16.7	35.1	19.6	8.9	13.6	4.9	1.3
Hispanic							
1996	46.9	26.0	13.2	4.6	6.7	1.8	0.9
2000	43.0	27.9	13.5	5.0	7.3	2.2	1.2
2004	41.6	27.7	13.2	5.4	8.8	2.2	1.1
2008	37.7	29.6	13.3	6.1	9.4	2.9	1.0
Asian/Pacific Islander							
1996	16.5	21.7	12.1	7.3	27.8	9.2	5.3
2000	14.3	22.0	12.4	7.0	28.9	9.5	5.9
2004	13.1	20.3	10.6	7.2	29.7	11.9	7.2
2008	11.0	20.0	10.2	6.9	31.6	14.0	6.4
American Indian/Alaska Native							
1996	27.6	33.6	20.4	7.2	5.9	3.7	1.6
2000	24.1	33.2	20.2	9.0	9.7	2.9	1.0
2004	22.2	31.0	21.5	11.0	9.2	3.6	1.5
2008	21.6	33.4	21.7	8.4	9.8	3.6	1.4

Taken together, these three tables show that if you are an adult Black, Hispanic, or Native American, you are much more likely to have less formal education and to be unemployed or paid much less than an adult White or Asian. This affects millions of people in the United States.

Establishing the Need for Education of
Adults for the Workplace

There are two ways to look at the education of adults for the workplace. First, the potential worker must gain entry to the workplace. We are still feeling the effects of the Great Recession with the reported unemployment hovering near 8% nationally. There are adults seeking to reenter the workplace and adults trying to enter the workplace for the first time.

Second, once a person is in the workplace, they must keep abreast of workplace changes and, hopefully, be adaptive enough to advance to their potential. Educators have a role in facilitating this.

Entry into the Workplace

There has been a fair amount written in the popular press about the loss of high paying jobs in the United States (Peck, 2011). To some extent, this is true. Other articles in the popular press describe high-skilled jobs that go unfilled due to a lack of trained workers (Thorpe, 2012). As I write this article, President Obama has just won reelection. One of his stated priorities is to bring a million manufacturing jobs to the United States over the next four years (Obama, 2012). Almost all of these jobs will go to people with high school diplomas or higher. As Table 5 suggests, this will bias the distribution of these jobs to Whites. One of the major focuses of adult education has long been to provide adult basic education (ABE) leading to the General Education Development (GED) diploma (Merriam & Brockett, 1997). This will continue to be a need in order to insure that people of color are not systematically excluded from emerging job opportunities as they are created.

Table 6 shows a list of the fastest growing (by percentage) jobs in the United States as reported by the BLS as of 2012. According to Sommers and Franklin (2012), one of the largest drivers will be changes in health care in the United States. This results in creating jobs at all educational levels, ranging from personal care aides to research scientists. For example, their projections call for over 700,000 new positions to be

Table 6.
Fastest Growing Occupations, 2010 and Projected 2020 (numbers in thousands) (Source: Sommers & Franklin, 2012)

	Employment		Change		Median Annual Wage: 2010
	2010	2020	N	%	
Total, All Occupations	143,068.1	163,537.1	20,468.9	14.3	$33,840
Personal Care Aides	861.0	1,468.0	607.0	70.5	19,640
Health Aides	1,017.7	1,723.9	706.3	69.4	20,560
Biomedical Engineers	15.7	25.4	9.7	61.7	81,540
Blockmasons, Stonemasons, and Tile and Marble Setters	29.4	47.0	17.6	60.1	27,780
Helpers--Carpenters	46.5	72.4	25.9	55.7	25,760
Veterinary Technologists and Technicians	80.2	121.9	41.7	52.0	29,710
Reinforcing Iron and Rebar Workers	19.1	28.4	9.3	48.6	38,430
Physical Therapist Assistants	67.4	98.2	30.8	45.7	49,690
Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	57.9	84.2	26.3	45.4	26,740
Meeting, Convention, and Event Planners	71.6	102.9	31.3	43.7	45,260
Diagnostic Medical Sonographers	53.7	77.1	23.4	43.5	64,380
Occupational Therapy Assistants	28.5	40.8	12.3	43.3	51,010
Physical Therapist Aides	47.0	67.3	20.3	43.1	23,680
Glaziers	41.9	59.6	17.7	42.4	36,640
Interpreters and Translators	58.4	83.1	24.6	42.2	43,300
Medical Secretaries	508.7	718.9	210.2	41.3	30,530

Table 6 Continued

| | Employment | | Change | | Median Annual |
	2010	2020	N	%	Wage: 2010
Market Research Analysts and Marketing Specialists	282.7	399.3	116.6	41.2	60,570
Marriage and Family Therapists	36.0	50.8	14.8	41.2	45,720
Brickmasons and Blockmasons	89.2	125.3	36.1	40.5	46,930
Physical Therapists	198.6	276.0	77.4	39.0	76,310
Dental Hygienists	181.8	250.3	68.5	37.7	68,250
Bicycle Repairers	9.9	13.6	3.7	37.6	23,660
Audiologists	13.0	17.8	4.8	36.8	66,660
Health Educators	63.4	86.6	23.2	36.5	45,830
Stonemasons	15.6	21.4	5.7	36.5	37,180
Cost Estimators	185.4	252.9	67.5	36.4	57,860
Medical Scientists, Except Epidemiologists	100.0	136.5	36.4	36.4	76,700
Mental Health Counselors	120.3	163.9	43.6	36.3	38,150
Pile-Driver Operators	4.1	5.6	1.5	36.0	47,860
Veterinarians	61.4	83.4	22.0	35.9	82,040

created for registered nurses between 2010 and 2020 and about the same number of positions created for home health aides.

Sommers and Franklin also predict considerable growth in construction jobs with over 1.4 million new jobs being created in that area. Many of these jobs will be entry-level jobs such as the helpers and assistants shown in Table 6. These may be jobs that do not require high-school diplomas but may lead to higher-skill, higher-pay jobs through training or apprenticeships that rely on adult education, continuing professional development or in-service education.

Staying in the Workplace and Advancing

Table 6 shows high growth rates in a mix of jobs with different educational and certification requirements. Sommers and Franklin (2012) assert that over half of the jobs created during the decade of 2010 to 2020 will not require a high-school diploma. Recall that these low-skill jobs will tend to be filled by persons of color since data from Aud, Fox, and KewalRamani (2010) have established that Blacks, Hispanics, and Native Americans are overrepresented among adults with less than a high-school diploma (see Table 5 above).

Table 6 shows several examples of low-skilled jobs such as health aides, pipefitter helpers, and carpenters helpers that are examples of these entry-level jobs. These jobs make considerably less than their skilled counterparts. For example, the median annual salary of health aides in 2010 was $19,640 but the salary of registered nurses was $54,860 (Cook, 2011). Likewise, the median annual income for a pipefitter's helper was $26,740 but the pipefitter should expect $41,392 (Cook, 2011). This illustrates that, without any chance for upward advancement, persons of color tend to enter and remain in these lower paying jobs (because of education, if no other reason). Adult educators have a role in facilitating the advancement of workers to high-skilled jobs. The ways that workers advance varies depending on the field and the jurisdiction but I will cite three areas as examples: health care, construction crafts, and engineering professionals.

Health Care Education

Many health care jobs require formal schooling. For example, a person can start to work as an aide in healthcare without any formal training. Formerly, this job would be called an orderly and had little to no patient contact. There are a number of nursing and patient care jobs with increasing responsibility and patient contact. Each of these jobs

has formal schooling and credentials that are set by each state. There is a real need to support this mobility since a large percentage of the registered nurses with a BS degree or higher is approaching retirement age (Megginson, 2008). In fact, many schools have instituted programs designed to specifically enable health care workers to move upwards professionally by reentry to formal educational programs and getting higher credentials. Examples of these programs include accelerated programs for licensed practical nurses (LPNs) to acquire their Associate's Degree in Nursing (ADN), and programs from ADNs to acquire their BS in nursing. Innovative programs have been appearing at universities, teaching hospitals, community colleges and technical schools for over a decade (Megginson, 2008; Marks, 2012). These programs include evening classes, online classes, distance education, and hybrid courses (Marks, 2012).

Despite these programs designed to facilitate upward mobility in health care, critical scholars report that these opportunities are not open and equal for all. Puzan (2003) reports that Whiteness works within nursing to prevent barriers to the education of persons of color making it hard for all to move upward with equal ease.

Adult educators associated with workplace education should expect to be very busy over the next decade. Many of the programs designed to fill the need for skilled health care providers require formal education and credentialing, but many of these programs will be provided to non-traditional (adult) learners in non-traditional settings. Alongside formal education, healthcare educators will need to provide a large amount of continuing professional development and in-service education for providers due to changes in technology, regulations associated with health care legislation, and the changing demographics (primarily aging "baby boomers").

Construction Crafts Education
I am going to discuss crafts such as carpentry, pipefitting, plumbing, ironworking, and other construction crafts as construction crafts. The most common way for a person to enter a construction craft is to come into the area as a worker, laborer, helper or apprentice. Depending on the state and the craft, it is common to spend some documented period of time working with someone who is licensed and qualified in the craft, and then to attend some formal educational activity for training. This can be provided by a technical school, a union, or another accredited institution. Finally, the worker takes a test and is licensed by a local au-

thority. The worker may also be required to pass additional tests by the union or employer.

As with most fields, Whiteness and bias still exist in the crafts. For example, Paap (2008) cites examples where union workers fear for their jobs because of the shrinking roles of union jobs due to economic conditions and the general decline of Labor in the United States. According to Paap, when an incident occurs, these workers tend to protect their friends who share similar skin color and sex. This results in unfair behavior to folks that are different. Since the majority of workers are White male, workers of color and female workers are discriminated against. (According to Paap, labor management is working to change this culture with varying success.)

In non-union situations, such as becoming a plumber in a "right-to-work" state such as North Carolina, a person must find a plumber to whom to work (NC State Board of Examiners, 2012). Since the majority of licenses are owned by White men, access to the field relies on an employer's willingness to work with persons of color or women to increase the diversity of the skilled workers with licenses. To date, this has been an issue in many states. For the sake of social justice, it is one area that calls for active work by adult educators.

Access to the Engineering Professions

One particular area of concern for the United States is STEM-related professions. Depending on what you read and what you choose to believe, there is or is not a shortage of STEM talent in the United States (Post, 2006; Rengers, 2003). I found various articles predicting dire results due to a shortage of engineers in every decade going back to the 1950s. I will, however, agree with Rengers here; in my experience, there is less a shortage of professionals than a shortage of skilled professionals. We continue to train and graduate engineers, scientists and architects. However, a large proportion of skilled professionals are reaching retirement age and leaving the workforce. In the 1980s, a variety of economic factors, such as the "oil bust," forced many young STEM professionals to leave their roles and move into other fields as their jobs were eliminated. As part of my own research, I have been interviewing consultants who report that most of the chemical engineers they find are either very seasoned or very new. While an extremely small sample, I believe it reflects a gap in the skills of many STEM-related professions.

To address this gap, apprenticeship and mentoring will be necessary. For many professions, this is common practice. This theoretical

model has been described by Lave and Wenger (1991, 1998) as communities of practice. These communities of practice, however, must take into account the cultural background of the participants in order to be successful (Grier, 2012). Often, these communities of practice are not sensitive to the culture of the participants. This is one area that adult educators will need to address in the future; bringing cultural awareness, sensitivity, and competency into the workplace so that informal learning opportunities can succeed (Bedwell, Weaver, Salas, & Tindall, 2011).

Ideally, workers in entry level jobs would be able to move upward to all skill levels, including the professional ranks of their industry. When I started to work as an engineer at DuPont, I found folks that had done just that. In fact, I worked with a Technical Fellow, the highest professional rank in DuPont at the time, who had started as a "hand" in the oil fields of Oklahoma. Because of his hard work and very high intellect, he had progressed as high as possible in DuPont. He was able to work as an engineer because employees of industrial firms can generally act as an engineer without formal training or a license (Schwartz, 2011).

But Cliff was an exceptional man and his was an exceptional case. Today, we should not rely on exceptions for providing upward mobility for workers to move from lower levels to higher levels within a profession or industry since there is great potential for benefit to multiple stakeholders. It removes systemic barriers that prevent people of color (and women) from sharing in the benefits of these higher paying jobs. It also benefits the industry itself because these workers are not novices. They bring a treasure of real-world knowledge that is not provided in formal educational settings. I know that when I began working in a chemical plant, I had to rely on the workers to learn the practical parts of running a plant. It took years of working with and listening to them to acquire an adequate (by my perception) depth of knowledge. By promoting from within, you have the potential to get practical, competent professionals.

Today, there are many opportunities for workers to return to school while working. Even workers that face rotating shifts can find online programs that fit their schedules. Many employers have educational assistance programs that will reimburse for some or all of the tuition and other expenses for employees returning to school. Most of these require approval by human resources or management. It was through one of these programs that I received support for my Ph.D. in Adult Education while working as a chemical engineer. I encouraged the chemical plant workers that reported to me to take advantage of this program. Only one of them did, completing a bachelor's degree in business.

I see this as an area that adult educators, particularly those working in HRD, need to address. There is a potential for companies to develop very strong in-house talent by encouraging talented workers to return to school. The potential for doing this will increase as the quantity and quality of online programs continues to increase.

General Workplace Learning

General workplace learning still takes place as it has in the past. Workers still need to learn procedures and job-specific skills. Workplace safety and compliance laws still have to be studied. Informal learning still accounts for the largest majority of the learning that takes place (Stolovitch & Keeps, 1999). Several important things are changing and adult educators must attend to them. The workplace is far less homogeneous (Cook, 2011) than it used to be, and it will continue to become more diverse over the next ten years. It is imperative that organizations take steps to facilitate smooth operations within their communities of practice in order for their organizations to succeed (Green, 2011). Green has proposed the use of employee networks to support employees from under-represented demographic communities. HRD professionals and adult educators will need to work with management to support these workers to facilitate their success.

English as a Second Language

As part of this diversity, there will be an increase in the number of English Language Learners in the workplace. We have established that the demographic diversity of the U.S. is changing. How is this related to workplace learning? The most obvious impact is language. According to the U.S. Census Bureau (2010), in 2000, there were about 46 million individuals who spoke a language other than English at home. Not surprisingly, the most common language for these individuals was Spanish, with over 26 million individuals speaking Spanish at home. According to this same report (U.S. Census Bureau, 2010), about 50% of these speakers could speak English "very well." The other languages with over a million speakers were Chinese, French, German, Tagalog, Vietnamese, and Italian. The largest groups of speakers who self-identified as speaking English "Not Well" or "Not at All" were Spanish, Chinese, Vietnamese, Korean, French, and Russian.

In many cases, employers find themselves in positions where they would like to hire those whose first language is not English. The fre-

quency of this situation will increase in the near-term. According to Brooks (2009), ESL training should be tightly integrated with work practices. Brooks suggests the following ways:

- Recruit and train English-language and culture coaches and mentors at the worksite
- Develop bilingual written material such as signs and important onsite memos and directives
- Reconceptualize language classes as "reflective communities" in which ESL learners name the communication challenges they are facing and the language teacher serves as a reflective resource
- Reconceptualize classes as "meetings" or "forums" in which ESL learners with more workplace longevity address the group and share what they have learned
- Advocate for a bilingual workplace in which interested native English speakers have the opportunity to study and learn Spanish or other common workplace languages by finding ways to focus together on problems they are attempting to solve at work (Brooks, 2009, p. 71)

Some of these practices are similar to the employee networks suggested by Green (2011) to support diverse workforces. This holistic framework of support for ESL workers allows them to establish networks of support and trust which will facilitate their learning. It would be impossible for each employer to establish formal training to meet the needs of diverse ESL workers who would bring in an infinite continuum of skills in English reading, writing, and speaking.

Summary

I was discussing this article in my Beginning Quantitative Research class with our second-year Ph.D. students and I described how daunted I felt by the numbers. There are layers upon layers of social injustice between potential millions of good workers and millions of good jobs. It almost seems too much. One of our students works in a local school district and described a situation where one very qualified woman was excluded from a position because she did not have a Master's degree. She questioned the rule and pointed out that the potential employee had practical experience that no other applicant could currently bring. Be-

cause of this "push back," the "under-credentialed" woman got the job.

My student summed it up by saying "It is what you teach us in this program. If the system is wrong and presents barriers to justice, work to change it." As adult educators, our role has never stopped at the chalk board, the PowerPoint™ presentation, or the Blackboard™ site. Our pedigree includes the role models of Paulo Freire, Miles Horton, and Phyllis Cunningham. It will be important over the next generation to work as change agents so that we help to eliminate the systemic barriers that create such gross inequalities in our workplace.

Many of the roles of the adult educator in the workplace will not change over the next few decades. We will still provide training for the skills needed to perform the job. We will still provide training that is mandated by regulations or forced on us by changes in the market or technology. In order for our employers to be successful in the near term, we must still work to improve the performance of the workers (Holton III, 2000). As Holton III (2000) points out, some scholars (Bierema, 2010; Gedro, 2010) feel that HRD professionals, by simply working to fulfill the organizational objectives, work to oppress workers. Bierema's 2010 paper reviewed research over a ten-year period and found that HRD "omitted" diversity work, contrary to claims that it worked to establish diversity in the workplace. In looking at the employment numbers found in Table 2, Bierema's findings are correct.

But what is lost by opening jobs up to all? In my opinion, nothing is lost because it benefits us all. Let us examine it from three perspectives.

From the Workers' Perspectives.

As the past few pages of data have suggested, today's worker faces systemic barriers to improving (or even holding onto) their position in tomorrow's workplace. It will be the role of adult educators to help re-move some of those barriers through education and negotiated opportu-nity in the workplace. In some cases—no, many cases—adult educators will need to act as change agents to improve policies to remove barriers that have nothing to do with education in the traditional sense but are familiar to us who have worked with issues of social justice.

From the Companies' Perspectives

Companies want the best performance they can achieve. Falling into sports metaphors, currently, many of the best potential workers are on the sidelines because they do not have the opportunity to get into the game. In many cases, workers in entry level jobs could move up if

given a chance. Companies should provide these workers with whatever education is really required. In many cases, a degree is not required; but even if it is, experienced workers bring real-world knowledge and loyalty that cannot be found in new-hires.

From our Society's Perspective

From the perspective of the United States, we have always prided ourselves on being the "melting pot." I think we should continue to be. I was in conversation with a friend today about what has changed since her great-grandparents immigrated from Italy. She said, "They learned the language and got jobs. No one helped them." Before I could answer, someone else pointed out that it was a different time. "They probably got jobs with other Italians and their kids learned English in school. Those types of neighborhood jobs do not exist anymore. People have to have advanced skills." It occurred to me that the support she described is similar to the networks proposed by Cook (2011).

In any event, society benefits from allowing people to maximize their potential. In the next three decades, that, I suppose, is the biggest role I expect of adult educators in the workplace. We must actively work to remove the systemic barriers that prevent people from moving into jobs that they should be able to do.

Of course, race, ethnicity, language, and age are not the only factors impacting injustice in the workplace. Women still make 81₵ on the dollar relative to men (Cook, 2011). In writing this paper, I discovered that, even in "gendered" professions like nursing, women make less (86%) than men (Cook, 2011). There are many members of the LGBTI community that still feel they must maintain two identities (Toynton, 2006) in order to feel safe. Adult educators will need to advocate for all to help eliminate injustice in the workplace through education and cultural change.

Think back to the situation that began this article. In one of my first conversations with the production manager at Lanolotion, I said, "Almost every employee, no matter where, wants to do a good job." He stopped me and objected to this statement, saying that this had not been his experience. Think about what would be required to supervise folks that did not want to do a good job. You would have to supervise them *all the time*. You would have to watch them all the time. Indeed, there was a cultural issue at Lanolotion. It was not a problem with the safety culture or the learning culture; it had to do with the way people were viewed. If

you trust your people and allow them to learn and make decisions, they should make the informed decisions that benefit the company. Employee education is a key to organizational success. Respect for others is as well.

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