



**Employer Perceptions of Associate Degrees in Local Labor Markets:
A Case Study of the Employment of
Information Technology Technicians in Detroit and Seattle**

Michelle Van Noy and James Jacobs

February 2012

CCRC Working Paper No. 39

Address correspondence to:

Michelle Van Noy
Research Affiliate, Community College Research Center,
Teachers College, Columbia University, and
Research Project Manager, Heldrich Center for Workforce Development,
Rutgers, The State University of New Jersey
30 Livingston Ave.
New Brunswick, NJ 08901
732-932-4100 x6213
Email: mvannoy@rutgers.edu

Funding for this study was provided by the National Science Foundation's Advanced Technological Education program. This study would not have been possible without the support of our partners at Macomb Community College (Warren, MI) and Bellevue College (Bellevue, WA). We are also grateful to local industry groups in both the Detroit and Seattle areas that assisted in our employer outreach and to the numerous employers who shared their time and perspectives with us. Matthew Zeidenberg skillfully extracted and analyzed data on online job postings. This paper benefited greatly from the insightful feedback of Thomas Bailey and Davis Jenkins of CCRC as well as Aaron Pallas of Teachers College, and the skillful editing of Wendy Schwartz. All errors or omissions are the authors'.

Abstract

While promoting postsecondary credential completion is a national priority intended to help graduates secure good jobs, the value of credentials in the labor market from the perspective of employers is not well understood. Specifically, more attention is needed to understand how credentials align with employer needs. Through in-depth interviews with managers responsible for hiring information technology technicians, we examined their perceptions of associate and bachelor's degree holders in two contrasting labor markets: Detroit and Seattle. The study led to several key findings. First, across the two labor markets, employers expected some common qualities in both associate and bachelor's degree holders, including technical skills and knowledge, thinking skills, communication skills, and discipline. Second, while they expected some positive qualities in associate degree holders that were distinctive to this credential, many hiring managers also expected negative characteristics, such as a lack of academic ability, initiative, or skill. However, while both associate and bachelor's degrees provided relevant information about potential workers, employers did not expect the credentials to provide information about certain key qualities they sought in workers, including competency in customer service and teamwork, and personal interest in technology. Some of the qualities that employers expected in associate degree holders were linked to their local labor markets and their perceptions of the local community colleges. This study provides suggestions on how an understanding of the specific qualities employers expect in credential holders and of the role of the local labor market can help colleges better engage with employers and fine-tune their programs to more effectively meet students' and employer's needs.

Table of Contents

1. Introduction.....	1
2. Prior Research.....	3
2.1 Assessing the Value of Credentials.....	3
2.2 The Role of Labor Markets.....	5
3. The Case Study.....	6
3.1 The Occupation: Information Technology Technicians	7
3.2 The Local Labor Markets: Detroit and Seattle	8
4. Methodology	10
5. Findings.....	11
5.1 Common Qualities Expected in Credential Holders.....	11
5.2 Distinctive Qualities Expected in Associate Degree Holders.....	15
5.3 Qualities Sought in Workers but Not Expected in Credential Holders	19
5.4 The Role of the Local Labor Market in Perspectives on Credentials.....	21
6. Conclusion and Recommendations	24
References.....	27
Appendix.....	30

1. Introduction

Policymakers, educators, and the public at large all agree that postsecondary credentials are crucial for economic success. High school graduates and displaced workers alike increasingly pursue community college education in the hope of attaining credentials that will lead to a well-paying job. Recognizing the close link between postsecondary credentials and economic success, several recent national initiatives have set ambitious goals to increase the number of college graduates, particularly at community colleges (Bill & Melinda Gates Foundation, 2009; Council of Economic Advisers, 2009; Lumina Foundation, 2009). Yet, with all the attention to credential attainment, less attention has been paid to understanding how credentials align with employer needs and consequently lead to good jobs for their holders.

While the national initiatives seek to promote the completion of credentials of “value in the labor market,” more information is needed on exactly what it means for a credential to have value in the labor market. What about credentials is valuable? What is the labor market in which credentials have value? Much of the evidence on the value of credentials is based on an examination of credential holders’ earnings in different fields, but research has not focused as much attention on the specific, and therefore valuable, qualities employers expect in credential holders. By investigating the latter issue, this study, conducted by Community College Research Center (CCRC) researchers in collaboration with National Workforce Center for Emerging Technologies (NWCET) at Bellevue College, seeks to provide insights that may help colleges redesign programs to effectively prepare students for employment and thus add to the economic value of the degrees they confer. Identification of the qualities associated with credentials is of particular importance for understanding the value of the associate degree, which is less widely held among the general population than other degrees and is consequently likely to be less well understood.¹

¹ Nationally, about 9% of the population have an associate degree, compared with 28% who have a bachelor’s degree (including those who also have a graduate degree) and 85% who have a high school degree (including those with higher levels of educational attainment) (U.S. Census, 2006). Among community college credentials, we focus on the associate degree because it is relatively more common than other community college credentials, such as short-term or long-term certificates, but subsequent research should examine the value of these other credentials as well.

In addition, much research on the value of credentials is conducted nationally or sometimes at the state level, but rarely on the local labor market. Given the distinct local nature of community colleges and of typical employer hiring practices, the local labor market is potentially important and often overlooked when examining the value of credentials. Thus, this study specifically considers the needs and expectations of two very different local labor markets: one in Detroit, the other in Seattle.

The value of credentials is particularly unclear in fields that do not have strong credential requirements and that can be entered via multiple pathways, including both credentials and prior work experience. Information technology (IT) is one such field and it is also a field where community colleges commonly offer programs. Previous research on employers of IT technicians raises questions about the extent to which the associate degree helps its holders find employment and suggests that employers prefer applicants with a bachelor's degree when hiring (National Workforce Center for Emerging Technologies [NWCET], 2005, 2006). Given projected labor market demand for IT technicians and ongoing efforts to support technician education, such as the National Science Foundation's Advanced Technological Education program, it is particularly important to examine the case of IT workers with respect to the value of the associate degree and, in particular, the value of the associate degree in comparison with the bachelor's degree.

Thus, this study seeks to provide a better understanding of what it means for an associate degree to have value in the labor market by examining employers' perceptions of it compared with perceptions of the bachelor's degree in the context of local labor markets that employ IT technicians. Through interviews with hiring managers of technicians in Detroit and Seattle, we examined the qualities employers expected to find in credential holders (both associate and bachelor's degrees), how those qualities matched with the qualities they sought in workers, and the role of the local labor market in shaping employer perceptions of credentials. As community college policymakers and practitioners promote credential completion, a better understanding of what it means for an associate degree to have value in the labor market is essential to support college completion goals.

The next section of this paper reviews prior research to provide background and context on the value of credentials. The third and fourth sections describe the case study and methodology used, respectively. The last two sections present the findings on employer perceptions of associate degrees across the two labor markets and the conclusions and implications of this research for policymakers and practitioners.

2. Prior Research

To provide background and context for this study, we examined prior research for insights on how to determine if a credential has value in the labor market. Value is examined in research that analyzes wage returns to credentials guided by human capital theory as well as in research that examines skills that employers expect in credential holders. Research on labor markets provides insights on their role in hiring and their unique relationship to higher education, particularly community colleges.

2.1 Assessing the Value of Credentials

A common way to assess the value of credentials is to examine the wage returns to credentials, that is, to examine the earnings of credential holders and infer the extent to which they can be attributed to the credential. Based on human capital theory, this approach argues that employers reward more educated workers with higher pay because they bring higher skill levels to the workplace (Becker, 1993). Much evidence based on analyses of wage returns documents that in general credentials are associated with higher earnings. A recent review of research on the wage returns to the associate degree calculates that on average men earn 13% more and women earn 22% more than high school graduates without a postsecondary degree (Belfield & Bailey, 2011).

Research on wage returns provides crucial information on the economic value associated with credentials. After all, policymakers and practitioners are interested in promoting credential completion with the goal of helping students gain access to better employment opportunities. Despite its importance, research on wage returns typically does not provide information on the specific reasons why employers value credentials. Furthermore, it does not document the kinds of skills employers expect in credential

holders nor how these skills align with the skills employers seek in workers. This type of information could allow colleges to better align their instruction with employer needs, which could increase the economic value of an associate degree to graduates. These measures of value must be assessed through more in-depth and direct research with employers about their preferences than are available in the data used in wage returns analyses.

Research with employers provides insights on the skills that they think are important and what credentials tell them about these skills. For example, a national study indicates that employers seek certain skills in recent graduates, including professionalism/work ethic, teamwork/collaboration, and oral communication skills (Casner-Lott, Barrington, & Wright, 2006). At the same time, many respondents in that study reported they were dissatisfied with the skills of recent graduates. Nearly half reported that two-year graduates were deficient in skills they rated as very important, including written communication and other writing in English. Nearly one third thought they were deficient in professionalism and work ethic (which were also rated as very important). This study highlights potential problems in the skill levels of credential holders as well as the specific types of skills sought by employers.

Employer studies of this type identify the skills employers seek in workers and expect to find in credential holders in general, but they do not address these issues in relationship to specific occupations. Recent research demonstrates important variation in returns to credentials by occupation, including substantial variation in earnings by field of study (Carnevale, Strohl, & Melton, 2011; Dadgar & Weiss, 2011). These differences may reflect differences across fields. For example, some fields are more regulated than others and legally require credentials—nursing is an obvious example. In other fields, the valuation of credentials is left entirely to the employer's discretion. In the case of unregulated fields, like IT, credentials may play an important role in matching workers to jobs, depending on employers' perceptions of credentials and the skills desired in the particular occupation. A better understanding of the role of credentials in matching workers to jobs can provide important insights into the value of credentials in the labor market.

2.2 The Role of Labor Markets

A labor market is generally defined as the arena where the exchange of labor occurs between workers and employers. Much research assumes that the relevant labor market is national. For example, the majority of wage returns studies are conducted on national samples; although some focus on state samples, they rarely focus on more local labor markets. While both workers and employers can be mobile, their ongoing systems of relationships tend to occur within geographically bound regions (Beggs & Villemez, 2001). Particularly for certain types of occupations, usually lower and middle level jobs, hiring occurs at a relatively local level (Beggs & Villemez, 2001), as is the case for jobs that require subbaccalaureate credentials. A recent study on wage returns finds notable variation in returns for the associate degree across local labor markets (defined by metropolitan areas) for different student populations (Kolesnikova, 2009).² This finding provides evidence that local labor markets matter in how credentials are valued, and it raises questions about why and how they matter.

There are a variety of possible explanations for why local labor markets might matter in how credentials are valued. If the mobility of workers is limited to the local labor market, the variation in the supply and demand of credential holders across labor markets provides an explanation for the difference in wage returns. Beyond this explanation remains the question of what this variation in wage returns means for the kinds of skills employers expect in credential holders. Other labor market characteristics may provide some insights on this matter. Labor markets may have particular cultures and/or practices that affect how employers approach hiring and, by extension, their views of credentials when hiring (Peck, 1996; Saxenian, 1994). Factors like the dominant industry and/or the average education level in the local population may have a role in how credentials are perceived. Employers' views may be shaped by the outlook toward education by the dominant industry in their local labor market. If an employer is located in an area where a high tech industry is concentrated, it may prefer workers with a higher level of education in keeping with the industry culture and may expect certain qualities in degree holders. At the same time, the dominant industry within a local labor market may

² Wage returns to the associate degree range from as low as 4% for white males in Seattle to as high as 21% for the same group in Detroit.

help determine the overall education level in the local population, as workers with a certain education level are attracted to the local area and thus shape its overall educational composition. In the case of a high tech labor market, the average education level is typically higher and the resulting overall expectations for education among its hiring managers may be higher. In this way, the views of hiring managers toward credentials may vary across local labor markets depending on characteristics such as industry and average education level.

Local labor market factors may be particularly important for understanding the value of community college credentials. Community colleges are distinctly local institutions, noted for their responsiveness in meeting the needs of students and employers in their community (Harmon & MacAllum, 2003; Grubb, 1999). They vary by local area in the type of programs they offer and the degree to which they focus on workforce development (Dougherty, 2003). Because of their local orientation, community colleges' institutional reputations and relationships with employers may also vary by local area. By cultivating relationships with local employers and the community at large, community colleges may bolster their institutional reputations and by extension the reputation of their credentials (Rosenbaum, Deil-Amen, & Person, 2006). Thus, the perceived value of their credentials may be linked to the particular perceptions among local employers about the community colleges as institutions. In this way the local labor market may be associated with different perceptions among employers of credential holders.

3. The Case Study

To examine the value of credentials and their role in hiring decisions, the Community College Research Center (CCRC) at Teachers College, Columbia University, in collaboration with the National Workforce Center for Emerging Technologies (NWCET) at Bellevue College, conducted comparative case studies of the role of the associate degree in hiring information technology (IT) technicians in two contrasting labor markets: Seattle and Detroit. Through in-depth interviews and document analysis with hiring managers in these two markets, we sought to understand hiring managers'

views of associate and bachelor's degrees when hiring IT technicians and how these views match the qualities they sought in IT technicians.

3.1 The Occupation: Information Technology Technicians

Among occupations for which community colleges prepare students, the IT technician occupation is particularly appropriate for a case study. IT technicians maintain basic computer and network operations in a wide range of organizational settings. Nationally IT technicians are expected to be in high demand with growth projected for both computer support specialists and network administrators (U.S. Department of Labor, 2010). Nearly all community colleges offer IT programs to prepare students for these occupations and IT degrees are among the most common occupational degrees awarded by community colleges (U.S. Department of Education, 2008). Given its prevalence, understanding this field has broad relevance for community colleges. Further, since IT technicians exist in all labor markets and industries (Boston Area Advanced Technological Education Connections [BATEC], 2007; Information Technology Association of America [ITAA], 2004), the IT field provides a good opportunity to examine the role of the labor market in how credentials are valued.

Standard hiring requirements have not been adopted for technicians by practice or by regulation. Despite the prevalence of community college IT programs, workers may enter these jobs through a variety of educational pathways, including both associate and bachelor's degree programs (Barley & Orr, 1997; Bureau of Labor Statistics, 2010). In technical fields such as IT, the use of credentials in hiring workers is entirely up to the discretion of the employer. Given their range of choices when hiring IT technicians, employers' perceptions of credentials are particularly important, as are the specific qualities that employers value in credential holders and how they align with the qualities they seek for these positions.

Perhaps because of the multiple paths of entry into the IT technician occupation, the role of the associate degree in the employment of these workers is not clear. As indicated above, prior research provides some indication that community college credentials in IT provide some advantage in employment. Students in community college IT programs who earn an associate degree have better employment outcomes than those

who just complete concentrated coursework in IT, controlling for student characteristics as well as work experience (Van Noy & Weiss, 2010). This evidence is consistent with other evidence on wage returns to community college credentials and supports the notion that the associate degree specifically in IT has economic value. However, focus groups with employers raise questions about the extent to which the associate degree helps these workers find employment (NWCET, 2005, 2006). Given these seemingly contradictory findings, it is important to understand how employers perceive the associate degree when hiring for IT positions and how this perception compares with their perceptions of the bachelor's degree.

3.2 The Local Labor Markets: Detroit and Seattle

The Detroit and Seattle labor markets were chosen for this study because of relevant differences in their dominant industries and in the average education levels of their residents. Seattle's IT focus and Detroit's automotive manufacturing focus provide a contrast in terms of the dominant industry. While both labor markets experienced difficulties as a result of the Great Recession, Detroit has been facing much greater challenges that predated the national decline associated with the recent recession (Vey & Friedhoff, 2010). With numerous layoffs and plant closings, the Detroit labor market has been struggling with a high unemployment rate and a large number of manufacturing workers who are seeking retraining in new fields. In contrast, Seattle's economy, while affected by the recession like much of the country, has had a relatively stable if not prosperous economic climate overall. In keeping with the demands of the respective dominant industries, the average education level of these two labor markets differs: 36% of Seattle residents hold a bachelor's degree or higher, compared with Detroit's 26% (U.S. Census Bureau, 2006).

We examined online job postings for IT technician jobs in the two labor markets to ascertain the stated preferences of each with respect educational credentials. Specifically we reviewed and coded the contents of Craigslist.org IT job postings in Seattle and Detroit between August 2008 and July 2009 for two main job types, systems/networking and tech support. These job types corresponded to the network support and desktop support positions that are the focus of this research.

The online postings we examined reflect differences in hiring practices in terms of educational credentials across the two labor markets. While educational credentials were not commonly mentioned on postings for IT technician positions in either Detroit or Seattle, the frequency with which they mentioned credentials varied substantially across the two. Employers in Seattle were more likely than those in Detroit to mention any education on their job postings (see Table 1). For both job categories of IT technician jobs, tech support and systems/networking, Seattle employers were more likely than Detroit employers to seek workers with education. Specifically, over one third of job postings for tech support positions in Seattle mentioned any education, compared with just over 10% in Detroit. Similarly, over 40% of systems/networking job postings in Seattle mentioned education, while just under 20% in Detroit did so. Although overall the job postings did not frequently list educational credentials of any type in either labor market, when they did list credentials they were more likely to mention a bachelor’s degree than an associate degree. This finding further supports the notion that the value of the associate degree for IT technicians is unclear and may not be as strong as the value of the bachelor’s degree.

Table 1.
Educational Credentials Cited in Online Job Postings, by Labor Market

Educational Level	Tech Support		Systems/Networking	
	Detroit (%)	Seattle (%)	Detroit (%)	Seattle (%)
Bachelor’s degree	7	18	17	35
Associate degree	3	6	1	4
High School completion	3	8	1	8
Any Education	12	32	19	42
Total (N)	475	1278	517	1391

Source: Online jobs postings from Craigslist, August 2008-August 2009.

4. Methodology

Researchers conducted in-depth interviews with hiring managers to elicit their perceptions of educational credentials and how they used them when hiring IT technicians. Employers were identified using a variety of criteria to ensure a mix of organizations within each labor market, including organization size, sector, and their existing relationships with community colleges. Recruitment sources included: Dun and Bradstreet's list of firms in Seattle and ReferenceUSA's list of firms in Detroit, employers that had a relationship with community colleges involved in this study (Bellevue College in Seattle and Macomb Community College in Detroit), and employers recommended by local industry groups and employers that already agreed to participate. The mixed sources of employer recruitment—college contacts, labor market lists, referrals, and industry associations—helped ensure variation in employers and their motivations for participation, and also helped counter concerns that the sample was biased.³ In Detroit 37 hiring managers across 28 organizations participated in the interviews; in Seattle 41 hiring managers across 30 organizations participated.

A letter of invitation and a one-page description of the study were sent to either the human resources contact or the information technology contact of the employers selected for the study. That mailing was followed up with telephone calls and emails to the appropriate contacts at each organization. Hiring managers from human resources and from IT departments were screened to ensure that they had some experience hiring IT technicians in the past three years. When possible, both a hiring manager from the IT department and a human resources representative from each organization were interviewed since both could be involved in hiring IT technicians. IT technicians included computer and network support staff who typically handled both software and hardware needs in a range of organizational settings. The interviews, usually one hour in duration, were conducted in person and via telephone from January 2009 through July 2009 and were recorded and transcribed verbatim.

³ If bias existed, it would likely be in the direction of the inclusion of respondents who had more favorable views of community colleges, since the organizations participating the study were community college affiliated. Thus, the results would be more positive about the associate degree than was actually the fact.

The interviews focused on hiring managers' perceptions of the credentials, including associate and bachelor's degrees, and on the qualities they sought in IT technicians. Perceptions of credentials informed managers' hiring decisions since they did not directly measure the actual qualities credential holders possessed. The managers described what they thought an associate degree and bachelor's degree would tell them about a potential worker for an entry-level IT technician position. They also described the qualities they sought and expected to find in IT technicians when hiring and their views of and experiences with community colleges. Researchers used open-ended questions rather than ask the respondents to make selections from a predetermined list and thus did not impose any external framework to shape their views. This approach enabled the emergence of a wide range of information in the interviews.

The interview transcripts were coded for themes using NVIVO. First, the researchers read all the transcripts in their entirety and coded them for general themes. Then, more detailed coding was carried out on the general themes. The detailed codes were carefully reviewed to ensure they were meaningful and distinct from each other, particularly when defining unique qualities expected in IT technicians. Throughout this analysis, the difference was interpreted as meaningful if the responses from employers across the two labor markets differed by 15% or more on any particular quality.⁴

5. Findings

5.1 Common Qualities Expected in Credential Holders

Employers in the two labor markets reported they expected several similar qualities in both associate and bachelor's degree holders. Most commonly they expected technical skills and knowledge, thinking skills, communication skills, and discipline. They also expected, though less frequently, other qualities, including the ability to learn,

⁴ Though this is not a statistical sample, these differences are sufficiently large that they would also meet the standards of statistical significance. The 15% difference would reflect a difference significant at just above the .05 level. For example, hiring managers across the two labor markets expected associate degree holders to have commitment to career more often in Detroit than in Seattle (42% and 11%, respectively) which is well above the .05 level of significance using standard statistical testing.

business knowledge, organizational skills, thinking skills, commitment to a career, fit within the organization, maturity, motivation, and well-roundedness. Table 2 summarizes the qualities hiring managers expected to find in associate and bachelor’s degree holders and the qualities they sought in IT technicians. (The Appendix provides descriptions of how these qualities were defined.)

Table 2.
Qualities Expected in Credential Holders

Quality	Detroit		Seattle	
	AA (%)	BA (%)	AA (%)	BA (%)
Ability to learn	26	17	19	17
Business knowledge	8	3	3	11
Commitment to career	42	28	11	14
Communication skills, verbal and written	21	19	16	29
Discipline	34	42	30	40
Eagerness to prove self	5	0	14	0
Sense of entitlement	0	11	0	6
Ability to follow directions/procedures	5	6	3	0
Hands-on skill	13	0	11	0
Lack of academic ability, initiative, and skill; stigma	26	0	46	0
Maturity	24	0	11	6
Motivation	13	6	8	3
Overqualified	0	8	0	9
Technical skill and knowledge	53	28	57	31
Thinking skills	24	25	22	31
Missing (N)	0	2	4	6
Total (N)	38	38	41	41

Source: Interviews with hiring managers.
AA=associate degree; BA=bachelor’s degree.

Thinking skills were among the most important qualities employers in the two labor markets expected among both associate and bachelor’s degree holders. When describing the qualities expected in an associate degree holder compared with someone without a degree, one Detroit hiring manager said: “They can probably troubleshoot with a little bit more logic behind it.” Likewise, another Detroit hiring manager stated:

I just think it gives them a better comprehension of what the job entails and I think they're better able to dissect, analyze, or problem solve, because they are better equipped with that broad base of knowledge that you can't get anywhere else other than a classroom setting sometimes, unless you're diligent enough to sit and read. And you just can't tell if individuals do that without a degree.

When speaking about both associate and bachelor's degree holders, one Detroit hiring manager commented: "So the more you learn, the more open-minded you become. You become a little better at analyzing things..." Seattle hiring managers echoed similar ideas about the associate degree. As one stated, "Obviously it takes some intelligence and some hard work and all that to go to school. So that's the big thing that it does for me." Another said the associate degree would indicate that someone had "an ability to do some basic problem solving." Regarding the bachelor's degree, one Seattle hiring manager stated:

What it tells me is that they have some discipline to go through a program, and that they could finish something, and that they have some critical thinking skills.

These hiring managers all commonly echoed the idea that education is associated with greater general thinking skills.

In addition, hiring managers in both labor markets often expected both associate and bachelor's degree holders to have communication skills that may include both speaking and writing skills and that pertain to the ability to convey information effectively in the workplace. Some hiring managers spoke broadly about education as an indicator that an individual had communication skills. As one Seattle hiring manager noted, "I would expect the same thing from an associate or a bachelor's [degree holder]. I expect them to be able to communicate easily with me." Another Seattle hiring manager stated the following:

The ability to write, to speak through writing, whether that's just an email, is mind-boggling bad, the communication skills of a lot of people. Typically if people have gone through college, those are somewhat better. Technicians without a formal education tend to not communicate well.

Expressing a similar sentiment, a Detroit hiring manager stated about bachelor's degree holders:

They're great communicators. They've had writing courses, and learned all the things that we require here. One of the big challenges with an entry-level position here as well is that our clients read the tickets sometimes. So, misspellings are huge, and improper grammar is huge.

Another Detroit hiring manager also emphasized communication skills among associate degree holders: "Just in terms of communication, they've expanded upon what they'd learned in high school, and have taken it to another level—interacting with their peers, their professors." The interviews illustrate that at least some hiring managers in each labor market reported communication skills were qualities they expected to find in both associate and bachelor's degree holders.

Discipline, or the ability to complete something, was another quality that hiring managers in both labor markets expected to find among associate and bachelor's degree holders. One Detroit hiring manager stated the following about bachelor's degree holders:

"The fact that you've worked hard and were able to accomplish a degree says a ton."

Another Detroit hiring manager stated: "[It] demonstrates that you can set a goal and work toward it and achieve it." Similarly a Seattle hiring manager stated: "Having a BA definitely proves that you were able to follow something through to completion." Hiring managers also shared similar sentiments about associate degree holders. For example, one Detroit hiring manager indicated: "I like anybody that finishes something that they started." and "I think the positives are that someone started something, and they completed it. It gives them a good start into a higher education." Likewise, a Seattle hiring manager stated: "I personally think it shows that somebody was able to do something that's not easy to do and stick to it to the end. It shows follow-through."

Another Seattle hiring manager explained the following when referring to all types of educational credentials:

For me, it signifies that someone has jumped through the hoops of getting their degree and has had the discipline to finish that degree. And I could say the same thing for an associate's or even a high school degree. It's just having that discipline to finish their schooling and accomplish something in their life.

Clearly, for some hiring managers in both labor markets, attending school and completing a degree indicated that an applicant possessed an important personal quality that was positive and valuable. Hiring managers reported this quality among both associate and bachelor's degree holders.

High numbers of employers reported that technical skills were a quality they expected to find in credential holders—both bachelor's and associate degree holders. Technical skills were a commonly reported quality that hiring managers expected in credential holders, though they had different expectations for associate and bachelor's degree holders. Hiring managers were less likely to report they expected technical skills and knowledge in bachelor's degree holders (28% in Detroit and 31% in Seattle) than in associate degree holders (53% in Detroit and 57% in Seattle). They also had different views of the credentials and their role in technical preparation. The bachelor's degree was thought to provide a deeper understanding of technology, whereas the associate degree provided graduates with immediate skills for work. As one hiring manager in Seattle said, "Where the bachelor's degree comes in handy, it gives them a better ability to be able to repair things, because they have a better understanding of the computers." Another hiring manager in Seattle simply stated: "They have a deeper understanding of the technologies." In contrast, a Detroit hiring manager reported the advantage of hiring individuals with an associate degree: "They would have that education requirement met and that they should come onboard with that knowledge so they wouldn't have to be trained as much."

5.2 Distinctive Qualities Expected in Associate Degree Holders

Employers expected certain qualities in associate degree holders that they did not expect in bachelor's degree holders. To some extent, hiring managers noted that they expected hands-on skills in associate degree holders, but they did not mention this quality among bachelor's degree holders. As one hiring manager stated about associate degree holders:

They've got hands-on experience probably through lab work, they understand theory, how networking works, they've studied, they know the fundamentals of all of the technical part of the job. So I know they're capable of coming in and contributing immediately.

This hiring manager attributed the hands-on skills to experiences gained from schooling, in this case, to “lab work” or experience in a simulated IT setting as part of a student’s program of study that prepared the degree holder to be ready to work. While hiring managers expect associate degree holders to have hands-on, real-world skills, they did not have the same expectation of bachelor’s degree holders and in some cases explicitly stated this difference:

Somebody who goes to a four-year degree and studies MIS probably doesn’t have the same grasp of some of this stuff as somebody who went and got their AA in Computer Networking or something that’s really, really applicable. So the community colleges have some good programs that are more hands-on toward that. And we love it.

Likewise, another hiring manager reported a similar sentiment about the greater likelihood of finding a worker with specific hands-on skills in an associate degree holder than in a bachelor’s degree holder.

Basic knowledge in the IT field, certainly, I think that’s what they do. I think they definitely get prepped on any type of IT position, I think they’re ready to go in and can understand, “Oh, this is what I’m doing.” When I say “Plug in the cord and match the blue and red,” you know to match blue and red, versus the other way around. And I think in essence, I think they’re ready. And perhaps maybe associates sometimes, I think, have more hands-on experience than four-year bachelor’s, in different ways.

This difference in perception about the presence of hands-on skills in associate degree holders is consistent with the general intention behind these degrees of preparing students for immediate work in technical fields and the often more applied nature of the curriculum in these programs. This difference in views of the degree supports the idea that the associate degree is considered a credential designed to prepare people for work.

Employers expected different attitudes toward work among associate degree holders and bachelor’s degree holders. A unique quality that hiring managers expected to find in associate degree holders was an eagerness to prove themselves. As one Seattle hiring manager clearly stated about associate degree holders expressed:

They know they're coming out of community college. They're really smart and can get what needs to be done. They're more hungry to get this job and prove themselves and to learn more and put out more effort to learn, because they feel like they have to, to prove themselves. Whereas other people who already coming with an IT background or coming with a degree from MIT or wherever, they don't feel like they have to really prove themselves.

As this quote indicates, some hiring managers believed that associate degree holders were more eager to prove their abilities in the workplace because of their awareness they were at a disadvantage compared with bachelor's degree holders, particularly those from more elite schools. This hiring manager, in particular, indicated that community college graduates were likely to be capable and skilled on the job, but would have concerns about their status in the workplace—associate degree holders might feel the need to “prove themselves” because of the view that their education was deficient.

At the same time, hiring managers also expected associate degree holders to have negative characteristics including: a lack of academic ability, initiative, or skill that would have precluded attainment of a bachelor's degree; a need for direction and supervision; and shame for holding a lower status degree. As one Seattle hiring manager stated:

Maybe what it tells...is that a two-year degree [holder] is someone who may not have been as academically inclined than someone who went through a four-year program.

While the time to earn an associate degree is shorter and thus suggests acquisition of less skill than a bachelor's degree, pursuing this degree also indicated to some employers that the worker was lacking in a way that might not be compensated for with additional education. In addition to the lack of ability among associate degree holders, another hiring manager suggested the associate degree might indicate the holder's lack of ambition or initiative indicated by doing just the minimum amount required.

Why did you only go for two years? Did you just want to get a job? That's kind of the gut feel. It feels like somebody did the minimum amount in order to be qualified to apply for a certain position.

Related to the expected lack of ability among associate degree holders was the need for greater direction and supervision. One Seattle hiring manager discussed the following dynamic among associate degree holders in relationship to organizational roles:

You don't want to take a two-year graduate who studied network security and put him in a company where he or she is the only person working on security. You're going to want to find a place where he'll work with some experienced folks so that he can grow faster, and not just rely on book learning in order to make that growth.

As these comments indicate, rather than being a positive marker of skill and ability, the associate degree was actually a negative marker that brought with it a sense of deficit in the minds of some hiring managers. While hiring managers were not asked to explicitly compare the associate degree with the bachelor's degree, in many cases this comparison was implicit in their discussion of the associate degree.

Some hiring managers discussed the negative views about the associate degree held by others, including both hiring managers and associate degree holders themselves. One Seattle hiring manager described the general view in society toward the associate degree as something of lesser value when compared with the bachelor's degree:

I think that sometimes people look at community college as being a lower level, a lower level of education, a lower level of commitment, than people who are going to a standard four-year institution.

Another Detroit hiring manager indicated that associate degree holders were aware of a potential stigma their degree might convey:

A lot of people don't even want to tell you they've got an associate degree. They'll just say they went to school. It's not that they think less of [an associate degree holder], people just don't think you're as advanced as a person with a bachelor's degree.

To some extent this hiring manager also conveyed a sense of ambivalence among associate degrees holders, speculating that they sometimes want to hide this degree as if it were a negative marker. That associate degree holders might want to hide their degree or prefer to leave their education unstated rather than disclose that they had an associate degree and not a bachelor's degree demonstrates such a feeling of stigma. That is, the

benefits of having an associate degree were not strong enough to outweigh the potential stigma of not having or pursuing a bachelor’s degree. Indeed, having an associate degree could suggest some fault or deficiency in the degree holder for choosing to get it rather than a credential they could be “more proud of.” Interestingly, these relatively negative views of the associate degree exist in conjunction with other more positive views of the degree.

5.3 Qualities Sought in Workers but Not Expected in Credential Holders

A key issue in understanding the value of credentials is how they align with the qualities employers seek in workers. When compared with the qualities hiring managers sought in technicians, the qualities expected in credential holders were similar but limited in some key areas. Many of the qualities expected in both associate and bachelor’s degree holders were the same qualities sought in technicians, including: the ability to learn, change, and follow directions; knowledge of business; communication, technical, and thinking skills; and motivation. Table 3 summarizes the qualities employers sought in IT technicians and compares them with the qualities employers expected in credential holders.

Table 3.
Qualities Sought in IT Technicians and Expected in Credential Holders

Qualities Expected/Sought	Detroit			Seattle		
	Tech (%)	AA (%)	BA (%)	Tech (%)	AA (%)	BA (%)
Ability to learn	49	26	17	19	19	17
Business knowledge	14	8	3	31	3	11
Communication skills—verbal & written	54	21	19	36	16	29
Customer service, able to work with users	46	--	--	61	--	--
Ability to follow directions/procedures	11	5	6	14	3	0
Hands-on skills	8	13	0	11	11	0
Motivation	22	13	6	6	8	3
Personal interest in technology	24	--	--	19	--	--
Teamwork, ability to work with others	32	--	--	25	--	--
Technical skills & knowledge	62	53	28	69	57	31
Thinking skills	24	24	25	47	22	31
Missing (N)	1	0	2	1	4	6
Total (N)	38	38	38	41	41	41

Source: Interviews with hiring managers.
AA=associate degree; BA=bachelor’s degree; Tech=IT Technician.

Hiring managers mentioned several traits they sought in technicians but did not expect to find in credential holders. These included customer service skills or the ability to work with users, personal interest in technology, and teamwork orientation. One Detroit hiring manager stated this sentiment:

Somebody who's highly techie and who doesn't know how to talk to people isn't going to be successful. A lot of what they do is desktop/desk site support. And you need to be able to make small talk and ask the right questions of the user to get to the problem.

This quote illustrates the importance of the ability to understand the needs of the people who use IT in the organization.

In addition, hiring managers reported they sought workers who knew how to work well in teams. As one Detroit hiring manager said: “You’ve got to know how to work in a team environment, because that’s what it’s all about at the end of the day.” Similarly, a Seattle hiring manager stated: “They need to be a good ‘culture’ fit. And that means: do they embrace the idea of teamwork?” The ability to work with others within the team of IT workers is a key quality that hiring managers in both labor markets sought, but was not a quality they would necessarily expect to find in degree holders.

While it is possible that credential holders might possess skills associated with teamwork and customer service, hiring managers did not report they expected to see them. Across both labor markets hiring managers said that they were more likely to seek these qualities when hiring IT technicians than to expect to find them in credential holders, including both associate and bachelor’s degree holders. Thus, they must seek to identify potential workers with these qualities through means other than their educational credentials, such as work experience. In fact, nearly a third of hiring managers in both labor markets reported that work experience was a key characteristic they sought when hiring technicians (30% in Detroit and 28% in Seattle). This finding highlights a key issue—that educational credentials, while important, do not themselves guarantee labor market success. While hiring managers recognized that important qualities can be expected in degree holders, they did not strongly believe that degrees identify the all the traits they want in workers for these roles.

5.4 The Role of the Local Labor Market in Perspectives on Credentials

Although employers across the two labor markets shared many key views about credential holders, some differences emerged. Hiring managers in Seattle and Detroit had different perceptions of associate degree holders linked to each area's unique labor market. In Detroit hiring managers were more likely than those in Seattle to indicate that an associate degree signified commitment to career in the given industry or occupation in which they obtained their degree (42% and 11%, respectively). One Detroit hiring manager stated: "It shows the interest in whatever area it is that they're pursuing," and another in the same city explained:

It tells you that they are career oriented and they're working towards trying to establish their careers. Sometimes associate degrees can be more specialized in terms of a particular subject area, so that helps, especially if they have one in computer science, a lot of times they'll come with that as well. It's very helpful—better than those who has not pursued their education at all.

Another Detroit hiring manager described the associate degree and alluded to individuals who wanted to make a career change: "So it gets them into the IT career field—a transition from something that they weren't in previously." One perspective on this matter was that more displaced workers were looking for a new career, including IT, given the higher amount of structural economic change and worker displacement occurring in Detroit because of the decline of the automotive industry. Therefore, in a labor market with a high number of career changers hiring managers may be more sensitive to verifying workers' demonstrated commitment to the field of IT.

In contrast, Seattle hiring managers were more likely than Detroit hiring managers to indicate that an associate degree signified a lack of academic ability, initiative, or skill (46% and 26%, respectively). The particular labor market composition in Seattle, with a relatively high number of bachelor's degree holders, might account for the higher prevalence of negative views associated with the associate degree.

Overall, employers' perceptions of the associate degree were mixed, but linked to their distinct labor market. In Detroit hiring managers viewed the associate degree as an indication of an applicant's commitment to career—a valued quality. In Seattle, conversely, hiring managers viewed it as an indication of lack of academic ability,

initiative, or skill—negative qualities. While the associate degree might be expected to yield less skill and demonstrate a lack of academic ability and initiative given the shorter time frame to attainment than the bachelor’s degree, it can also stigmatize a holder of it by implying broader deficiencies when compared with the qualities of an individual with a bachelor’s degree. The different ways that the associate degree was viewed may be rooted in differences in each labor market in terms in how employers viewed education, supporting the notion that local labor markets have some unique social practices across all employers that are shaped by the dominant industry and its associated level of education. The different education levels in each labor market may form a standard for comparison when evaluating an applicant’s credentials. In Seattle the bachelor’s degree is more common and thus is the likely point of comparison for the associate degree, whereas in Detroit the bachelor’s degree is less common so employers are likely to view the associate degree more positively as a credential.

The different views of associate degrees also may be explained by differences in how hiring managers viewed community colleges. Table 4 summarizes hiring managers’ views of community colleges across the two labor markets. Seattle hiring managers were more likely than those in Detroit to view community colleges as workforce oriented (78% and 48%, respectively), believing them to be good for technical fields, hands-on and specific instruction, and retraining. One Seattle hiring manager said: “I think community colleges have a great role in that skill-enhancing piece and their certificate programs.” Another Seattle hiring manager further illustrates this point: “I think it serves a great function if I’m in a position where I want to change careers. If I wanted to go into a new field, I’d look at community colleges.”

Table 4.
Hiring Managers' Views of Community Colleges, By Labor Market

View of Community Colleges	Detroit (%)	Seattle (%)
Workforce Oriented	48	78
Connected to industry	8	10
Good for technical fields, hands-on, specific	35	53
Good for retraining	8	23
Good resource for hiring	3	8
Transfer Oriented	54	38
Smaller classes, teaching focused	11	3
Good entrance to college, prepare for 4 year transfer	32	33
Go to gain maturity and direction	24	18
Other		
Less rigorous, look down upon, stigmatized	27	20
Less expensive, affordable	46	28
No different from four-year colleges	14	5
No impressions	8	0
Missing (N)	0	0
Total	38	41

Source: Interviews with hiring managers.

In contrast, Detroit hiring managers were somewhat more likely than Seattle managers to view community colleges as transfer oriented (54% and 38%, respectively) and as less expensive and affordable (46% and 28%). One Detroit hiring manager stated: “I think community college is a great way to get your first two years behind you.” Likewise, another Detroit hiring manager commented: “They use the community college to get a general education at a lower rate compared to the university.” Detroit hiring managers’ view that community colleges were both transfer oriented and affordable provides an indication of the role these institutions played in the local labor market. Hiring managers had a more positive view of community colleges as providing credentials of value because they could lead to a bachelor’s degree; as a result they were more linked to perceptions of four-year institutions. In contrast, community colleges were viewed as relatively more workforce oriented in Seattle: they may be valuable for specific training but less valuable for indicating more general ability.

These perceptions may be explained by the particular context for higher education in the two labor markets. In the Seattle labor market, the view that community colleges provide workforce preparation supports the idea that the associate degree is a marker of

immediate technical skill. Hiring managers in Seattle, with its relatively high overall level of educational attainment, viewed the associate degree as less likely to indicate higher level thinking skills. They viewed community colleges as workforce oriented and potentially less likely to provide the kinds of thinking skills they were looking for: community colleges were a good place for retraining but not effective for training an individual for initial entry into the workforce.

In contrast, hiring managers in the Detroit labor market, with its relatively fewer bachelor's degree holders, saw community colleges as an attractive pathway toward a career. Community college completion demonstrated a commitment to a career, which was valued by Detroit hiring managers. In Detroit, which was experiencing a high level of industrial change, managers viewed the associate degree as an indicator of commitment to career and the community colleges as a less expensive and a good place to enter higher education. These perceptions in Detroit may reflect the idea that community colleges were viewed by many hiring managers as more of an extension of the four-year university than as a lower status institution. While some Detroit hiring managers still viewed the associate degree negatively, this was less common than in Seattle. In contrast, Seattle community colleges had a reputation for being very workforce oriented institutions which, while valuable, was distinct from the more prestigious reputation of the university. Nearly all hiring managers in both labor markets had at least some experiences with community colleges so their perceptions were similarly grounded in experience. Indeed, less than 10% of hiring managers in both labor markets reported no experience with community colleges.

6. Conclusion and Recommendations

Employers' views of the qualities they expected in credential holders and sought in technicians in the Detroit and Seattle labor markets provide several important insights for colleges. Employers commonly expected both associate and bachelor's degree holders to have technical skills and knowledge, thinking skills, communication skills, and discipline. Community colleges should consider building on these strengths in these areas

and emphasize the development of these competencies, as they are fundamental, shared expectations among hiring managers.

The specific qualities that employers expected in associate degree holders provide an indication about how they valued that credential. While hiring managers believed that positive qualities were associated with the degree, they also expected some degree holders to possess negative characteristics, indicating that the associate degree sent a mixed message to employers. To counteract the negative connotations associated with the associate degree, community colleges may want to increase their outreach to potential employers of their graduates. While it may be difficult for colleges to reverse widespread perceptions, they can begin to develop and cultivate stronger and targeted relationships with specific employers that show an interest in hiring their graduates. In their interactions, colleges can promote the positive attributes of their students, such as their hands-on skills and specific technical abilities. More fundamental change in attitudes would likely require greater public relations campaigns on an institutional level.

Colleges can also develop strategies to help support students' pursuit of the bachelor's degree, given the reality that many employers may still prefer this credential. Doing so may mean that colleges need to develop more programs with strong articulation agreements to facilitate their students' continued education. However, these programs may also be limited because they may only articulate with applied programs and not with traditional bachelor's degree programs. Little is known about employment outcomes, including employer perceptions, of the applied baccalaureate degree (Ruud & Bragg, 2011). As these applied programs expand throughout the country, future research should examine these issues further.

While employers in this study expected credential holders to possess several qualities important for the available positions, there were certain qualities they did not expect in credential holders. Notably, employers reported they did not expect customer service and teamwork abilities, and personal interest in technology. Colleges, regardless of the local labor market, might consider evaluating their programs to determine the extent to which these competencies, particularly in customer service and teamwork, are fostered by their curriculum. They might identify ways to increase opportunities for students to build these competencies, possibly through the inclusion of more

opportunities for internships and/or work-based learning or classroom-based activities that involve teamwork. To the extent that colleges believe their graduates possess these traits, they might conduct more direct employer outreach to more effectively demonstrate their students' value and counter these perceptions.

Another key finding of this study is that labor markets have a role in how employers perceive credentials. Specifically, factors such as the average educational level of local residents, the nature of the industry, and the local community college system may be associated with employers' perceptions of credentials. In labor markets where a higher number of four-year degree workers are employed and employers tend to hold relatively less positive perceptions of associate degree holders, community colleges may need to market their students and programs more aggressively. They also may need to pay particular attention to establishing strong articulation agreements to allow their students to pursue a bachelor's degree.

In addition, what employers think of community colleges in general, based on their reputation in the local labor market, has a role in the perceptions of credentials. This finding supports the notion that the general marketing of the college within the labor market influences the perceived value of the college's credentials. Colleges may seek to focus their outreach efforts on the perceptions of their institutions overall, in addition to their specific programs and credentials. Community colleges should be aware of the particular perceptions of their institutions based on their labor market characteristics and the historical orientation of their community college system.

Community colleges face an important challenge in expanding employers' knowledge about their programs and adjusting their programs to meet employers' needs. They may want to develop the ability to help "create the market"—that is, not just produce the supply of degrees, but also influence the demand for those degrees. Colleges also may want to fine-tune their programs to make sure that they align with their local labor markets. Ultimately, rather than simply relying on national goals or projections of what degrees are most needed, community colleges must become more proactive in understanding employers' views of the degrees they offer so they can ensure that their degrees have value in the local markets.

References

- Barley, S. R., & Orr, J. E. (Eds.) (1997). *Between craft and science: Technical work in U.S. settings*. Ithaca, NY: ILR Press.
- Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). Chicago, IL: University of Chicago Press.
- Beggs, J., & Villemez, W. (2001). Regional labor markets. In I. Berg & A. Kalleberg (Eds.), *Sourcebook of labor markets: Evolving structures and processes* (pp. 503–535). New York, NY: Kluwer Academic/Plenum.
- Belfield, C., & Bailey, T. (2011). The benefits of attending community college: A review of the evidence. *Community College Review*, 39(1), 46–68.
- Bill & Melinda Gates Foundation. (2009). *Postsecondary success*. Seattle, WA: Author.
- Boston Area Advanced Technological Education Connections [BATEC]. (2007). *BATEC information technology workforce skills study*. Boston, MA: Author. Retrieved from <http://www.batec.org/download/BATEC%20Workforce%20Study%20Released.pdf>
- U.S. Department of Labor, Bureau of Labor Statistics. (2010). *Occupational outlook handbook, 2010–11 edition: Computer support specialists*. Washington, DC: Author. Retrieved from <http://www.bls.gov/oco/ocos306.htm>
- Casner-Lotto, J., Barrington, L., & Wright, M. (2006). *Are they really ready to work?* New York, NY: Conference Board.
- Carnevale, A., Strohl, J., & Melton, M. (2011). *What's it worth? The economic value of college majors*. Washington, DC: Georgetown University, Center on Education and the Workforce.
- Council of Economic Advisers. (2009). *Preparing the workers of today for the jobs of tomorrow*. Washington, DC: Executive Office of the President. Retrieved from http://www.whitehouse.gov/assets/documents/Jobs_of_the_Future.pdf
- Dadgar, M., & Weiss, M. J. (2011). *Labor market returns to sub-baccalaureate credentials: A quasi-experimental analysis of community college in Washington State*. New York, NY: Columbia University, Teachers College, Community College Research Center. Manuscript in preparation.
- Dougherty, K. (2003). The uneven distribution of employee training by community college: Description and explanation. *Annals of the American Academy of Political and Social Science*, 586(1), 62–91.

- Grubb, W. N. (1999). *Learning and earning in the middle: The economic benefits of sub-baccalaureate education*. New York, NY: Columbia University, Teachers College, Community College Research Center.
- Harmon, R., & MacAllum, K. (2003). *Documented characteristics of labor market-responsive community colleges and a review of supporting literature*. Washington, DC: U.S. Department of Education, Office of Vocational and Adult Education.
- Information Technology Association of America [ITAA]. (2004). *Adding value...growing careers: The employment outlook in today's increasingly competitive IT job market* (Annual Workforce Development Survey). Arlington, VA: Author. Retrieved from <http://www.pr.viu.ca/techcomm/documents/04workforcestudy.pdf>
- Kolesnikova, N. (2009). *Community colleges: A route of upward economic mobility*. St. Louis, MO: Federal Reserve Bank of St. Louis.
- Lumina Foundation. (2009). *Goal 2025*. Indianapolis, IN: Author. Retrieved from http://www.luminafoundation.org/goal_2025.html
- National Workforce Center for Emerging Technologies [NWCET]. (2005). *Upper division skill standards project: Final report*. Bellevue, WA: Author.
- National Workforce Center for Emerging Technologies [NWCET]. (2006). *Strengthening connections: Preliminary findings*. Bellevue, WA: Author.
- Peck, J. (1996). *Work-place: The social regulation of labor markets*. New York, NY: Guilford Press.
- Rosenbaum, J. E., Deil-Amen, R., & Person, A. E. (2006). *After admission: From college access to college success*. New York, NY: Russell Sage Foundation.
- Ruud, C., & Bragg, D. (2011). *The applied baccalaureate: What we know, what we learned, and what we need to know*. Champaign, IL: University of Illinois, Office of Community College Research and Leadership
- Saxenian, A. (1994). *Regional advantage: Culture and competition in Silicon Valley and Route 128*. Cambridge MA: Harvard University Press.
- U.S. Census Bureau. (2006). *Selected social characteristics in the United States: 2006*. (American Community Survey). Washington, DC: Author.
- U.S. Department of Education, National Center for Education Statistics [NCES]. (2008). *Table 277: Degrees conferred by degree-granting institutions, by control of institution, level of degree, and field of study: 2006–07*. Retrieved from http://nces.ed.gov/programs/digest/d08/tables/dt08_277.asp

U.S. Department of Labor, Bureau of Labor Statistics. (2010). *Occupational outlook handbook (OOH), 2010–11 edition*. Washington, DC: Author. Retrieved from <http://www.bls.gov/OCO/>

Van Noy, M., & Weiss, M. J. (2010). *The role of community college education in the employment of information technology workers in Washington State* (CCRC Working Paper No. 23). New York, NY: Columbia University, Teachers College, Community College Research Center.

Vey, J. S., & Friedhoff, A. (2010). *Great Lakes monitor: Tracking economic recession and recovery in the 21 largest metropolitan areas of the Great Lakes region*. Washington, DC: The Brookings Institution.

Appendix

Descriptions of the Qualities Expected in Credential Holders and Sought in Information Technology Technicians

Qualities	Description	AA Holders	BA Holders	IT Technician
Ability to follow directions	Follows procedures to complete tasks.		X	X
Ability to learn	Ability to acquire new skills or knowledge; Includes interest in continued learning and general openness to learning and change.	X	X	X
Business knowledge	Understanding of how IT fits into the broader business context.	X	X	X
Commitment to career	Plans to maintain a career in IT; serious about their career or work.	X	X	
Communication skills	Ability to effectively convey information via speaking and writing.	X	X	X
Customer service, able to work with users	Ability to effectively work with end users of the IT and understand their concerns.			X
Discipline, ability to complete something	Shows person completed an achievement; shows hard work and follow through.	X	X	
Eager to prove self	A desire to show one's ability at work; willingness to work without a sense of entitlement; "hungry."	X		
Hands-on skill	Hands-on, practical knowledge of IT; ability to do specific tasks in an applied setting.	X		X
Lack of ability, skill, or initiative	Deficient in positive qualities, like ability, initiative or skill.	X		na
Maturity	Maturity.	X	X	
Motivation	Ambition and drive; ability to seek out challenges and work independently.	X	X	X
Overqualified	Too much education for the job; will not be happy in the job.		X	na
Personal interest in technology	Genuinely interested in IT and spends personal time keeping up with technology.			X
Sense of entitlement	Attitude of being owed something or deserving a certain job or a certain salary.		X	na
Teamwork, ability to work with others	Ability to work with a team, fit in an IT department and act as a team player.			X
Technical skills & knowledge	Specific knowledge of IT, including the latest technology & systems; ability to handle specific technical tasks .	X	X	X
Thinking skills	Ability to logically think and solve problems; troubleshooting including analytic thinking, critical thinking.	X	X	X

Source: Interviews with hiring managers.
na = Not applicable.