Credentials in Context:
The Meaning and Use of Associate Degrees in the Employment of IT Technicians

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Submitted in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy
under the Executive Committee
of the Graduate School of Arts and Sciences

COLUMBIA UNIVERSITY

2011

ABSTRACT

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Educational credentials are clearly linked to economic success, but the reasons for this link are not clear. Common theoretical approaches provide explanations but lack direct employer perspectives on credentials' meaning and the context in which employers make sense of credentials. In this study, I used an alternative perspective based in Meyer's (1977) theory of education as an institution, labor market sociology, the sociology of work, and organizational theory to examine the role of social context in how employers make sense of the associate degree for IT technician jobs. I conducted comparative case studies of contrasting labor markets: Detroit and Seattle. I interviewed 78 hiring managers in 58 organizations of varying types about their perceptions and ways of using degrees in hiring IT technicians.

Hiring managers' perspectives on associate and bachelor's degrees for IT technician jobs reflect their ideas of degree holders' social roles. They expected associate degree holders to be eager to please and to lack ability, skill, and initiative relative to the bachelor's degree holders. In contrast, they expected bachelor's degree holders to feel entitled. These expectations of traits found in different degree holders illustrate the relative status differences between these credentials and degree holders' reaction to these differences.

Hiring managers held ideas about associate degrees specific to their local labor market. Detroit hiring managers more commonly expected associate degrees to signify commitment to career, while Seattle hiring managers more commonly expected them to signify lack of ability, skill, and initiative. These differing views may be associated with the level of education in the local population and the reputation of local community colleges.

Some evidence indicates that bureaucracy in hiring may also influence the use of educational credentials. Further research is needed to understand the role of organizational context.

The key finding of this study is that credentials exist in a relational context. Degrees take on meaning in relationship to social context, including: other degrees, the occupation, the local labor market, and potentially the organization. This finding exists in contrast to common theories that propose standard meanings associated with educational credentials but miss these more specific, situated meanings.

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CHAPTER I: INTRODUCTION

While the link between educational credentials and economic success has been
well documented, the reasons for this link have not. The broad theoretical approaches of
human capital and conflict theory provide some insight, but leave many unanswered
questions and typically lack direct examination of the actual employment process. As a
result, they do not provide evidence on the meanings employers attribute to credentials or
the underlying contextual reasons for their use in hiring. This evidence may be embedded
in institutionalized ideas about education, as well as the specific labor market and
organizational context in which employers make hiring decisions, which are often
neglected in these common theoretical perspectives.

Community colleges in particular offer the promise of economic advancement
through credential attainment. Many people seek community college credentials such as
the associate degree, and several national initiatives seek to support the completion of
these credentials in order to promote success in the workforce (Bill & Melinda Gates
Foundation 2009; Council of Economic Advisers 2009; Lumina Foundation 2009). Given
this emphasis, a more detailed understanding of the outlook among employers toward
these credentials is essential to determine their value and the circumstances in which
these credentials have value. While general analyses supporting the broad labor market
value of credentials may yield support for these credentials, a more nuanced
understanding of the value of these credentials can help policymakers and practitioners
focus these initiatives in more meaningful ways and, as a result, better promote
graduates' success in the labor market.

This research will apply an alternative perspective to understanding these issues by examining employers' views and uses of associate degrees in their labor markets and organizational contexts. In this first chapter, I begin with a discussion of the issues related to the associate degree as an educational credential. I then review common theoretical perspectives on educational credentials and their limitations by explaining issues related to the associate degree. Finally, I briefly outline the rationale for an alternative perspective on the meaning and use of education that accounts for employers' labor market and organizational contexts. In the second chapter, I outline the theoretical basis for this alternative perspective on the meaning and use of the associate degree based on institutional theory and informed by labor market sociology, organizational theory, and the sociology of work. In the third chapter, I discuss the study methodology used to examine these issues. In the fourth chapter, I report on the study findings, and in the fifth chapter, I provide a conclusion and suggestions for future research as well as for policy and practice.

The Unclear Role of the Associate Degree

Studies of graduates' wage returns provide some indication of employer behavior relative to associate degree holders. Syntheses of research on the economic returns to community college education conclude that compared with high school degrees, associate degrees are associated with higher earnings (Belfield and Bailey 2010; Grubb 2002). On average, a four-year college graduate has higher earnings (20 to 40 percent for men, and 30 to 40 percent for women) than a two-year college graduate, who has higher earnings (20 to 30 percent) than a high school graduate (Grubb 1999; Grubb 2002). Overall, the available evidence indicates that the associate degree provides economic benefits, and

these are greater than those gained by individuals who go to college but do not obtain a credential. Current analyses using national data on a more recent cohort of students confirm the findings of these prior analyses: the earnings of both men and women with community college degrees are higher than those with only high school diplomas but lower than those with four-year degrees (Marcotte, Bailey, Borkoski, and Kienzl 2005)[1]. This confirmation of previous findings shows that, over time, the economic returns of community college education persist and are relatively stable.

While research has documented the wage returns to associate degrees, the reasons for these wage returns have not been well researched or documented. Understanding these reasons is complicated because of several issues specific to the associate degree. First, while associate degree programs are often promoted with the clear goal of preparing people for certain occupations, the motivations behind the origins of these programs are contested in the higher education literature. Second, while these programs have become commonly offered by community colleges across the country, the number of their graduates in the population is not nearly as prevalent as other credentials, so they may be less well understood. Finally, community college programs, in general, are viewed as highly local and, thus, their role may vary depending on their labor market and its specific employers. Given these issues, the meanings employers attribute to associate degrees and the way they use them in the hiring process is not simply or easily understood.

The community college's role in offering programs to prepare students for the workforce evolved over time. Initially, the key focus of community colleges was to

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[1] This study uses data from the 2000 follow-up survey of the National Education Longitudinal Survey (high school graduates in 1992).

increase access to higher education to a broader population of students by providing the first two years of a four year college education, thus democratizing the whole process of higher education (Cohen and Brawer 2003). Another early motivation may have been to divert students from four-year colleges and universities in order to maintain these institutions' elite status and focus on research (Brint and Karabel 1991). However, over time, community colleges also began to offer technical programs with credentials intended to prepare workers for middle level technical jobs, later supported by federal funding from the Vocational Education Act starting in 1963 (Cohen and Brawer 2003). National policy dialogues encouraged colleges to develop a vision of the community college as an institution driven by local community needs, including preparing people for the workforce (Brint and Karabel 1989; Cohen and Brawer 2003).[2]

The debate over the origins of technical degree programs at the community college provides insight into the value of these credentials in the labor market. Ostensibly the reason community colleges sought to develop degree programs in technical areas was to address employers' need for skilled workers in their local area. However, some prominent scholars challenge this rationale. Brint and Karabel (1991) argued that community college leaders sought to promote their own interests by creating a market distinctly suited for their institutions—technical training programs for workers not educated by four-year institutions. Consistent with this argument, Dougherty (1994) argued that, in addition to community college leaders, a variety of government leaders also sought to promote community college vocational education for their political interest in demonstrating their responsiveness to employer needs. Both arguments imply that

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[2] Examples of national policy dialogues include President Truman's Commission on Higher Education in 1947 and the Carnegie Commission on the Community College in1970.

community colleges developed associate degree programs to help people enter the workforce in the absence of a clear demand from employers for these credentials. Without evidence of employer demand at the inception of these programs, it is unclear what meanings employers have come to hold about these degrees.

Compounding the lack of clarity on their meaning, associate degrees are not as highly prevalent as other degrees. Nationally, about nine percent of the population holds an associate degree, compared with 28 percent with a bachelor degree (including those who also have a graduate degree) and 85 percent who have a high school degree (including those with higher levels of educational attainment) (US Census 2006). By virtue of their small numbers, associate degrees may be less understood than other credentials. Since they are not common, the general population and the culture at large may have less developed understandings of them relative to high school and bachelor's degrees.

In addition to their lack of broad understanding in the general population, community colleges are known as very local institutions, specific to certain geographic areas with a mandate to serve their local community. They have been noted for their labor market responsiveness and the importance of their potential ability to maintain relationships with local employers, government, and community groups (Harmon and MacAllum 2003; Leigh and Gill 2007). They may develop ties with specific employers in their local labor markets, as well as assume economic and workforce development roles in their local areas (Dougherty and Bakia 1999; Grubb 1999; Harmon and MacAllum 2003) . They may also vary in the extent to which they assume a workforce development role versus a transfer-oriented role (Dougherty and Townsend 2006). For these reasons,

the value of community college education may be particularly connected to the local

labor market climate in terms of hiring requirements held by employers and the particular

relationships between community colleges and local employers. Given these local ties

and relationships, the meanings employers attribute to associate degrees and the way they

use them in hiring may be more tied to the local labor market context than other

credentials.

Wage returns to associate degrees provide an indication of local labor market

context. Prior studies of the wage returns to community college education indicate that

their subbaccalaureate credentials are particularly local in their orientation (Grubb, 1999).

Recent studies of wage returns to education demonstrate the locally specific effects of

labor markets. Kolesnikova (2009) found that the wage returns to associate degrees

compared to the high school degree vary widely across labor markets: from as low as 4

percent for white males in Seattle to as high as 30 percent for the same group in Miami,

and even as high as 39 percent for Hispanic males in Atlanta. Returns for women were as

low as 18% in Phoenix for Hispanics and as high as 45% for Blacks in Houston. The

underlying reasons for this variation are not well understood.

Common Perspectives on Educational Credentials

Despite analyses that indicate employers pay more to workers with associate

degrees than to those with less education, the reasons why they do so are not clear. Two

overarching perspectives provide some commonly held, although contrasting,

explanations for why educational credentials have economic returns in the labor market.

While there are many ways to view the different theoretical perspectives on educational

credentials, one key way of organizing these perspectives is by whether they view

credentials as indicators of: skill and productivity, as proposed by human capital and related theories; or status and power, as proposed by conflict theories. Given the prevalence of these two perspectives in the fields of economics and sociology, it is important to review their key ideas and limitations before offering an alternative perspective. In this section, I discuss the major theories of each perspective in terms of their ideas on what educational credentials signify, and the evidence to support their claims. I apply these perspectives to understanding associate degrees, and examine their major limitations in this understanding.

Human Capital and Related Theories

A very common view of educational credentials from economics is posited by human capital theory. This perspective views education as designed to convey skills and abilities needed by workers in society and holds that those workers with higher levels of educational attainment typically have greater skills and abilities and thus deserve higher economic rewards. (Becker 1993; Mincer 1958; Schultz 1961). Broadly defined, human capital includes activities that increase people's productivity or investments that "improve skills, knowledge, or health", though education and training are the most commonly described human capital activities (Becker 1993). In this perspective, when people obtain more education, they gain more skills and therefore receive higher wages. Thus, economic gains associated with community college credentials are interpreted as reflecting employers' rewarding skills workers attained through their community college education.

Analyses documenting higher wages for more educated and skilled workers provide the key evidence in support of human capital, based on two key assumptions.

First, employers act rationally by hiring more skilled workers and rewarding them for their skills with higher wages. Second, skills are generated through education, and these skills are related to performance at work. While these assumptions may be true, their support is based more often on theory than direct observation of employers' hiring behaviors. More data are needed to fully validate the key underlying ideas of human capital theory.

Some econometric analyses raise questions about the reasons for wage returns as assumed by the human capital perspective by comparing the return to credentials versus an equivalent amount of time in school without a credential. These analyses of "sheepskin effects" indicate there may be an additional premium placed on obtaining a credential compared to completing an equivalent amount of education. These effects may exist because completing a degree indicates something about the individual's personality or motivation (Ferrer and Riddell 2001; Flores-Lagunes and Light 2007). Grubb (1997) found evidence of higher economic returns from attaining a community college credential compared to a similar amount of education. He suggested these might be due to "program effects"; that is, these might be attributed to the knowledge gained from a concentrated program of study, since these data compare years of education with credential attainment, and do not provide information on the content of the education (Grubb 1997).

Building on these issues, screening and signaling theories provide a different perspective on the value of education in the hiring process than human capital theory. Both theories challenge the fundamental basis of human capital theory that educational credentials represent technical skills related to work. Rather, signaling and screening theories posit that instead of representing these skills, educational credentials represent

other characteristics that employers value, such as motivation or the ability to learn (Arrow 1973; Spence 1973; Stiglitz 1975). According to signaling theory, because individuals who seek further education have more of these qualities, employers value educational credentials in the hiring process (Spence 1973). Likewise, screening theory argues that educational credentials indicate workers have the qualities that make them valuable workers, as evidenced by the double screening process of selective admissions into college and then graduation from college (Arrow 1973; Stiglitz 1975).

These two theories ascribe the wage returns to the associate degree to its role in differentiating those who enter college and those complete a degree (Grubb 1999). Yet, similar to human capital theory, these theoretical perspectives do not rely on direct data from employers to support these conclusions, but rather typically rely on wage returns to infer employer preferences. It is not evident from any of these theories what guides employers in their hiring practices relative to their views of credentials.

While human capital theory and screening and signaling theories differ in the underlying meaning of credentials, i.e. technical skills versus personality disposition, they share the idea that education represents valuable skills or abilities in potential workers related to production at work. These perspectives share the assumption that wage returns to workers with associate degrees are a result of employers paying more for their higher productivity. The main shortcoming of these perspectives is that they focus on individual workers and their characteristics and do not examine employers' perspectives to document their reasons for using educational credentials when hiring workers. Furthermore, these perspectives do not account for social context of their organizations or local labor markets. Thus, while these theories offer interpretations of wage returns to

education, they do not verify these interpretations from the perspective of employers because of their reliance on large-scale wage records data. Thus, while these theoretical perspectives offer a widely accepted explanation for employer behavior, they are limited in their insight into employers' motivations and actions, as well as how these might be influenced by their social context.

Conflict Theories

In contrast to the human capital perspective, conflict perspectives generally argue that education represents status, and preserves limited resources for the more powerful in society. Rather than serve to develop skills and abilities relevant for work, these theories argue that education perpetuates social inequality and maintain the interests of the elite (Bills 2004; Collins 1971). Several sociological theories, including control, cultural capital, and credentialism are forms of the conflict perspective, united by their common examination of the role of education in maintaining power relations in society. They vary in the extent to which they also argue that education generates qualities in individuals related to work.

The interests of the elite are central to the control perspective. This perspective proposes that educational practices within schools act as a means of control by socializing students, based on their class, for their future roles as workers in capitalist society (Bowles and Gintis 1976; Bowles and Gintis 2002). In this view, education teaches lower class students to be compliant and controllable, not to question authority, and to follow instructions; in contrast, it teaches upper class students to develop independent thoughts, cultivate expressiveness, and be independent and self-directed. Rather than viewing education as providing technical skills, this perspective focuses on

how it provides social dispositions and attitudes for class-based roles in the workplace. Criticism of community college vocational education and its limits on students' intellectual development are an analogous extension of this perspective. Rather than provide students with a broad set of cognitive skills, technical degree programs may simply teach narrow skills directly related to specific work. Research in this tradition is based on observations on what is taught in schools, so it is limited by its lack of data from employers about their hiring practices.

In a similar way, the cultural capital perspective sees education as a means of conveying knowledge and dispositions in a class-based system. In this theory, the education system reflects the knowledge and dispositions of the elite (Bourdieu 1984). The cultural knowledge or "capital" embodied in the educational system is a valued currency in the competition for status and resources. Education is associated with the development of class-based cultural attitudes and dispositions, as well as selection into educational institutions based on one's elite status. The ultimate result of education is the certification of these cultural attitudes and dispositions through degrees. Those from more privileged backgrounds tend have the type of cultural capital that is reflected in educational institutions and allows them to successfully navigate these institutions. In this way, individuals' cultural capital is converted into institutionalized cultural capital in the form of credentials. From this perspective, as part of the higher education system, associate degrees may be viewed as certifications of elite knowledge or status. Alternatively, the community college's open admissions policy and relatively low status among higher education institutions may call its ability to convey elite distinction into question.

Another type of conflict theory is the credentialist perspective, which argues that elite groups use educational credentials to maintain status and advantage. In this view, the group in power requires credentials for entry into certain occupations to prevent other groups from entering and competing for jobs (Brown 1995; Collins 1979). This perspective takes a historical view on the expansion of education credentials, for example, arguing that the primary force behind credential expansion in the US was conflict among ethnic groups (Collins 1979). It questions the role of educational credentials in the hiring process and critiques them as being poor markers of skill. Rather, it argues that education teaches middle class culture, in terms of physical appearance and communication style, and conveys cultural attitudes and dispositions needed for managerial positions (Brown 1995; Brown 2001; Collins 1979). This perspective focuses primarily on bachelor and graduate degrees, so its direct application to community college credentials is not clear. The associate degrees' lower position relative to bachelor's degrees complicates its use for exclusion. Some have argued it may serve as a barrier to attaining the bachelor's degree and, thus, be part of the process of exclusion (Brint and Karabel 1989; Pincus 1980). Alternatively, the associate degree may function in a similar way as the bachelor's degree as a marker of exclusion relative to the high school degree. For example, in occupations, such as nursing, the associate degree provides rights to gain licensure to practice. In the case of nursing, maintenance of this right is largely a political effort as evidenced by distinct lobbying effort on the part of community colleges to maintain this right. Organizations have rules that require the use of credentials for hiring that may ignore individual skills levels in the absence of the credential. This perspective differs from others described so far because of its greater

focus on employers, a theme that is central to this study and will be expanded upon further in subsequent chapters.

These perspectives all share the idea that educational credentials are used to maintain advantage. The direct applicability of this proposition to associate degrees is complicated by the degree's position in the hierarchy of higher education. It is possible associate degrees may function similarly to bachelor's degrees in their use for exclusion and status relative to lower levels of credentials. Alternatively, associate degrees may be another means of exclusion. However, conflict perspectives' focus on educational credentials as part of the struggle for power does not fully explain why employers raise wages for increases in educational credentials, nor account for the possibility that employers seek technical skills in workers to successfully perform on the job. Furthermore, as with the human capital perspective, conflict perspectives typically focus on individuals rather than employers as the primary focus of their analysis (with the exception of Collins), and thus are not fully able to explain employers' ideas and use of educational credentials. Likewise, they typically do not address contextual issues associated with local labor markets or with employers as organizations. These perspectives are sometimes situated as arising from the context of the 1970s when there appeared to be an excess of college graduates in the labor market, in contrast to current times when the lack of college graduates is a high profile policy concern (Handel 2003; Meyer, Ramirez, Frank, and Schoffer 2007). However, more recent versions of these theoretical arguments still maintain the same tenets (Berg 2003; Bowles and Gintis 2002; Collins 2002).

An Alternative Perspective on Educational Credentials

A key shortcoming of these perspectives is their limited empirical data on employers' ideas about educational credentials and how they use them in hiring in different contexts. Since the connection between education and employment outcomes occurs when employers make hiring decisions, direct evidence on this process is essential to better understanding educational credentials. Despite evidence of wage returns associated with the associate degree, the reasons for these returns are not fully understood, as common theoretical perspectives are seemingly at odds with each other. To go beyond these common perspectives, an alternative perspective must directly examine employers and the meanings they associate with educational credentials.

Another major shortcoming of these common perspectives is they do not take into account potential contextual influences on the role of educational credentials in hiring. An alternative perspective must account for the particular contexts in which hiring decisions are made, such as the labor market and the organization. Employers exist in relationship to their labor market with its overarching industry focus, particular educational institutions, and education level within its population that may influence their understandings of education. Employers also have different organizational environments with varying degrees of bureaucracy and ways of organizing work that may influence how they use educational credentials in the hiring process. These potential influences of labor market and organizational context must also be examined in an alternative perspective on educational credentials.

Much of the previous research on the meaning of education has focused on individuals and the role of educational credentials in their occupational attainment or

wages. While this focus provides useful insights, employers as actors are often overlooked. Thus, in this study, I focused on employers rather than individuals, examining their ideas about the meaning of educational credentials and how they use these in hiring. I sought to shift the focus from the individual worker and his/her educational credentials to the employer holding particular ideas about educational credentials and engaged in particular hiring practices that reflect those values. With this study I did not seek to prove or disprove either functional or conflict perspectives but rather to refocus the analysis to employers and their reasons for valuing educational credentials. The theoretical goal of this research was to examine employers' perceptions and use of educational credentials to examine an alternative explanation to human capital and conflict perspectives.

Some practical implications for community college policy and practice also exist. Given the emphasis on education for economic goals, how employers view and use the associate degree and its relationship to their context is important. Understanding the contexts in which employers positively view associate degrees or not has implications for how community colleges structure these programs and how they reach out to employers. Thus, the practical goal of this research was to provide evidence on community colleges' role in serving their local economic needs by highlighting the contexts in which employers may be more likely to hold positive or negative views of associate degrees. This more nuanced understanding of employers' ideas about associate degrees may help community colleges better engage with employers and communicate useful information about their degrees.

CHAPTER II: A CONTEXTUAL PERSPECTIVE ON CREDENTIALS

To examine employers' meanings and use of educational credentials in their social context, I draw on several sociological perspectives in addition to human capital and conflict perspectives. I seek to build on prior research on employers' use of educational credentials in the hiring process, particularly the work of Bills (1988a; 1988b; 2003). Sociological viewpoints on social structure offer a more comprehensive framework for understanding educational credentials in their particular context. Specifically, I use institutional theory, as applied to education by Meyer (1977), to makes sense of the meanings employers' attribute to credentials. Also I use perspectives from labor market sociology, industrial sociology, and the sociology of work and occupations to help understand employer perceptions and behavior. Using these theoretical perspectives, I examine credentials in their institutional, labor market, and organizational context.

This approach to understanding employers' meanings and use of educational credentials shifts the focus to employers relative to their social context and seeks to illuminate reasons why employers value educational credentials by directly examining their views. It may offer new insights on the old debates between human capital and conflict perspectives. In this chapter, I review the theoretical approaches that guide this study and form this alternative approach to understanding educational credentials. First, I discuss prior research focused directly on employers and educational credentials, and its limitations. I then discuss three key levels of social structure that form the social context in which employers operate: institutional, labor market, and organizational. I discuss institutional theory as a way to understand the broad societal context for employers'

perceptions of educational credentials. Then I discuss the role of labor market context, and then organizational context, in shaping employers' perceptions and use of educational credentials. Finally, I discuss in more detail theoretical approaches the examination of employers' meaning of educational credentials.

This study primarily examines the perceptions and use of credentials by employers as represented by *hiring managers*, not their organizations. Disentangling hiring managers' beliefs and actions from those of their organizations is difficult; that is, it is not clear which actor holds the meaning—the individual hiring manager or the organization—nor which of these actors is ultimately responsible for the action of using credentials to hire workers. In this way, hiring decisions may be attributed to an organization level policy, an individual hiring manager's action, or some combination of both. Organizations may select hiring managers with beliefs and actions that are consistent with their organizational preferences or the organization may not have distinct preferences, leaving those beliefs and preferences up to the hiring manager. In this study, I focus on hiring managers as the unit of analysis, as they are the actors within the organization responsible for the decision to hire and each may hold potentially unique views.[3] However, given the complexity of this relationship, while I focus this study on hiring managers, I recognize their views and actions may also reflect organizational views and actions.

This study focuses on educational credentials in the *hiring process*, as opposed to other points in the employment process. This study does not focus on their role in the promotion process since this process is distinctly different from the hiring process. Prior research indicates credentials are more likely to be used in hiring workers than in

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[3] For the purposes of this study, the term employer refers to hiring managers.

promoting them, since employers have more direct information on the worker when considering a promotion than when hiring (Bills 1988c). While the role of credentials in the promotion process also involves important issues for examination, this is beyond the scope of this study. This study also does not focus extensively on the role of credentials in the recruitment process before hiring managers get to the point of making a hiring decision, except to examine when a credential is mentioned as a preference or a requirement in a job posting.

Rather than infer meaning from use, this study seeks to measure both the meaning and use of credentials by hiring managers, while also accounting for their social contexts. Examining hiring managers' perceptions of credentials provides information on the role of credentials in the process of matching persons to jobs. It does not assess the actual success of the resulting match between worker and job. This study takes a particular focus on associate degrees, but the general approach may be applied to all educational credentials. Specific issues related to associate degrees are discussed throughout, as appropriate.

Research on Employers

Direct research on employers and their perceptions and use of educational credentials is limited. Typically research examines students' employment outcomes, or employers' use of credentials in terms of wage rates, and infers meaning based on these actions. This study seeks to fill this gap in the research by directly examining what employers think credentials mean and how this translates into their use of credentials in hiring workers. Despite this overall lack of research on employers, some prior research does provide information on employer perspectives to inform this current study. In this

section, I review this prior research for insights on understanding employers' perceptions and use of educational credentials in the hiring process.

An important study of employers and their use of educational credentials is Bills' study of hiring transactions in six Chicago area firms (Bills 1988a; Bills 1988b; Bills 1988c; Bills 1990; Bills 1992a). This study is a rare example of a direct examination of employer use of credentials in the hiring process and is instructive both in terms of its methodological approach as well as its findings. Bills' study sought to understand how hiring managers use educational credentials when making hiring decisions. To do so, he interviewed hiring managers about their experiences hiring a range of workers in their organizations. He examined in detail the hiring transaction—that is, each new worker whom an organization hired was examined to understand the role of the educational credential in the hiring decision. The hiring transactions were for a range of job positions within each of the eight organizations in the same labor market. Notably, this study attempted to examine how employers use credentials by asking them directly about their experiences using educational credentials in the context of specific instances when they made hiring decisions. Employers were interviewed, so they were able to provide detailed descriptions of the hiring process and their use of credentials. Rather than research that relies on limited measures available in quantitative data, this study is able to provide a much greater depth of information on the use of credentials.

An important finding from Bills' study relates to employers' beliefs about how skills are gained, and whether they are gained through education (Bills 1988a). Employers responded to open-ended questions about whether the workers' skills used on the job were learned in school. The open-ended responses pertained to either specific or

general skills. The findings varied depending on whether the worker was hired from outside the company or internally; hiring managers who hired workers internally were more likely to associate general skills with education whereas those who hired externally linked specific skills with education. At the same time, hiring managers also reported it was possible the workers may have gained the skills through other means aside from education. This finding raises questions about why credentials are associated with higher earnings if employers do not know whether having those credentials is associated with having greater skills. Hiring managers also responded to a question about how education affects work performance more generally (not in the context of the specific job). The most common response was that education created general skills in workers; these skills include such qualities as communication, ability to fit in the organization, and ability to learn or be taught. However, employers used a range of information beyond educational credentials to make their hiring decisions and they evaluated the link between education and skills differently depending on the individuals' characteristics, such as age or gender. He concluded the while the evidence does not clearly support any one theoretical perspective, it does lean in the direction of supporting a screening perspective: that employers like credentials because they provide information on workers' trainability or ability to think. The findings also provide some support for the cultural capital perspective in that the more conservative employer in the study sought to hire workers who would fit their organizational culture. Bills concluded, however, that there is little support for the control perspective postulating that employers use education to hire workers because it creates a compliant personality to conform to the workplace since

employers saw education and personality as acquired separately and independently (Bills 1992b).

Bills also examined how hiring managers use educational credentials when making hiring decisions for new workers (not promotions), in terms of how they weigh these credentials versus other information on the worker and how these educational standards were established (Bills 1992b). Bills concluded that the employers set educational standards that were akin to societal norms for those particular occupations. However, they also were flexible in their use of these standards based on the stringency of the labor market; in fact, they were more likely to change their hiring standards than their wage rates.

Furthermore, this analysis concluded that employers also view experience as an important hiring factor that could substitute for education, but employers seek to find evidence of specific skills in order to do so. Bills found that education plays just one part in the hiring process. He conducted interviews with hiring managers about specific hiring transactions, and concluded that the use of educational credentials is less crucial to the hiring process than other theoretical perspectives might suggest (Bills 1988a). Rather, it is just one of several important considerations in the hiring process, including experience, personality, and skills which employers viewed as important criteria (Bills 1988b; Bills 1988c). He also concluded that employers viewed education as useful in the promotion process because it provided information about the worker's ability to learn (Bills 1988c).

In another analysis, Bills (1992a) examined how the level of educational credential matches with the particular position in the hiring transaction. This analysis sought to determine to the extent employers have fixed ceiling for educational credentials

or whether overeducation is an issue in hiring. This analysis indicated that employers are flexible in the educational credentials they view as acceptable for particular positions. But some employers had reservations in hiring workers with too much education, for fear these workers would leave soon and cost the employer more in hiring costs. Others felt that excess education would be helpful in the chance of promotion for the worker. This analysis underscored the importance of examining the value of credentials in relationship to job position. A credential that is valuable and appropriate for one position may not be valuable or appropriate for another. It is only in the context of that match between credential and position that this understanding can be gained. This match may be influenced by larger, shared expectations in society about the appropriate level of educational credential for the position (Bills 1988c).

While Bills' research offers a variety of very important findings, particularly because of its focus on both use and meaning of credentials, its main limitation is that it does not look at these issues in their unique contexts. This research examines a broad range of occupations (from management, support staff, and unskilled workers) so it is not able to address the role of matching credentials to specific occupations in. He focused on a wide range of occupations to look at variations in the role of education, but did not allow for an in-depth look at any particular occupation. However, he did note that possible differences may exist across occupations due to political and institutional differences, such as licensing and certification requirements, or the nature of the work, such as the degree of risk in hiring an unsuitable worker (Bills 1988b). Because there were only six organizations, which were not selected to examine organizational differences, this study was not able to examine the role of organizational context (Bills

1988b). However, this prior research suggests organizational level issues may be important (Bills 1988b). Furthermore, because this study was situated in just one labor market, it was not able to examine the potential role of labor market variation. Bills (1988b) acknowledged labor market factors such as the available supply of job candidates may have an important role in employers' use of educational credentials in hiring. He concluded that an important future direction for research on the role of educational credentials in hiring is "to clarify the conditions under which employers use schooling and other factors to select employees" (Bills 1988b).

Furthermore, Bills focused on the hiring transaction and specific instances of employers' actions in using educational credentials when hiring workers. He did not examine broader conceptions of education and its role in preparation for particular occupational roles, as an institutional analysis would. He acknowledged the role of these ideas, however:

> We make no claim that employers' decision making constitutes the entirety of the demand side. Rather, employers' decisions are embedded in a society that has already developed broadly shared understandings of how much education is appropriate for different jobs, in firms that have already constructed and codified job descriptions and requirements, and in a workforce that largely selects itself towards or away from occupational opportunities. (Bills 1988c)

While Bills' focus on hiring transactions is particularly useful for understanding how hiring managers use educational credentials, it does not provide information on their broad conceptions of what these credentials mean. A better understanding of the meanings employers hold comes from a more open-ended exploration of their conceptions.

Another important study on employers' use of educational credentials comes from the credentialist perspective. Collins (1974) argued that organizations with particular characteristics are more likely to require credentials than other organizations. He found from an analysis of a 1967 survey of San Francisco hiring managers, that several organizational characteristics were associated with greater use of educational credentials in hiring: organizations with normative control over their employees, organizations with a service rather than market orientation, organizations with a lot of technical change, and large national bureaucratic organizations. Among these characteristics, he concluded that the strongest support exists for the idea that employers use credentials for normative control of workers. He found some evidence that technological change is associated with the use of credentials in smaller organizations. This discussion of the organizational diversity in the use of credentials is illuminating, but is refined by an analysis of the same data by Cohen and Pfeffer.

Cohen and Pfeffer (1986) examined the effects of organizational level characteristics on the use of educational credentials in the hiring process using the same data as Collins (1974). They expanded the possible perspectives examined in the analysis. They tested four distinct perspectives on the use of credentials in hiring: technical (firms use credentials to find technically skilled workers), control (firms use credentials to find reliable and dependable workers), institutional (firms use credentials because it is expected), and political (different organizational actors benefit differently from the use of credentials, i.e. personnel departments like them because these formal standards give them more power in hiring, whereas unions don't like them for the opposite reason). They used the same data as Collins but sought to extend his analysis by adding political

factors into their model. In their analysis, they found that the use of credentials is positively associated with firms having a personnel department (signifying the departments desire to professionalize and standardize the hiring process, a political factor), the amount of training and technological change (supporting the idea of human capital theory, a technical factor) and the presence of an internal labor market (also interpreted as consistent with technical factors). In contrast, they found that the presence of a union is negatively associated with the use of credentials. They found no relationship between the employer size or economic sector (core versus periphery). They concluded that the strongest factors in explaining the use of credentials are not control (public trust organization, core sector) or institutional (size and public trust organization) factors, but rather technical (internal labor markets, technical change and training) and political (the presence of a personnel department) factors.

The strength of these studies by both Collins (1974) and Cohen and Pfeffer (1986) is their focus on the employer as a unit of analysis. They provide insights on the organizational characteristics associated with the use of credentials. However, one main limitation of these studies, like studies of wage returns, is they infer meaning from use. Their primary focus was on the organizational attributes associated with use. They did not directly attempt to examine the meanings employer attribute to credentials and their role in hiring. They provide some potentially useful insights into the organizational context in which the credentials are used. However, the survey data used for this study are now quite old and based in just one labor market, so these findings are limited.

Penoyer-Kulin's (1991) study provides another rare example of a theoretically informed analysis of employers and their use of educational credentials in hiring. She

conducted a survey of 180 hiring managers at randomly selected employers in the

Toronto area including a range of industries and sizes. The survey included high level

hiring managers responsible for hiring in a select group of occupations: entry-level

professional/technical, managerial, and sales, for which they typically hired university

graduates. The analysis sought to test different theoretical explanations for the use of

credentials from an organizational perspective. Penoyer-Kulin examined the extent to

which employers use credentials because they represent cognitive versus noncognitive

factors and how this may support human capital and functionalist theories versus conflict

theories Her study found that larger organizations with more complex job roles tend to

use educational credentials more than other organizations, which she concluded provides

support for the perspective of human capital theory. The link between the use of

educational credentials and technological change was not strong, nor did the study find

any evidence in favor of conflict theory perspectives on educational credentials. It is a

rare and unique examination of the meanings employers attribute to credentials linked to

their organizational context. It is limited, however, by its scope, which focused on just

one labor market, and restricted the examination of educational credentials to bachelor's

degree holders only.

The issue of labor market context was brought to the fore by Bridges' (1996)

study of the role of education in different labor market contexts and how the use of

credentials varies across industries. This examination was based on the idea that

employers may reward educational credentials for different reasons depending on the

industry. For example, they may be valued because they reflect technical knowledge, or

due to their connection to status culture. This analysis was focused on whether credentials

are used differently for their symbolic value depending on the location in the labor market. Bridges found that the financial industry is more likely to use credentials, which he attributed to the more traditional nature of that industry. He concluded educational credentials do not have the same meaning in all settings. This study provides evidence of the variability in the use of credentials across the type of employer and the importance of understanding the meanings underlying their use relative to their labor market contexts.

Some research has been conducted on the qualities employers seek to find in holders of educational credentials, though this is often not grounded in a specific theoretical framework. For example, a survey of employers across a range of industries revealed the qualities they think are important to the success of recent hires with associate and bachelor's degrees (Heldrich Center for Workforce Development 2005). The top six most important qualities for both types of graduates were teamwork, social skills, critical thinking, integrity and honesty, problem solving, and judgment and decision-making. Employers reported that bachelor's degree graduates were better prepared than associate degree graduates in terms of their social skills (67 percent versus 60 percent prepared or well-prepared) and their critical thinking skills (56 percent versus 43 percent prepared or well-prepared). They report similar levels of preparedness for the other qualities. Another survey of employers found they seek common traits in all recent graduates including: professionalism/work ethic, oral and written communication, teamwork/collaboration, and critical thinking/problem solving (Casner-Lotto, Barrington, and Wright 2007). They found that employers expect bachelor's degree holders to be most likely to have the qualities they seek and associate degree holders to have very few of these at high levels.

While these studies provided important insights, I do not examine these studies and others like them in great detail, because they do not address theoretical questions.

While some prior research directly examined employers and their use of educational credentials in hiring, it is limited in two key ways. First, it does not provide information on the meanings employers actually attribute to educational credentials. Second, it does not inform how those meanings and employers' subsequent use of credentials are linked to their social context in terms of institutional, labor market, and organizational influences. The next section discusses the potential influence of social context on employers' meaning and use of educational credentials.

<div style="text-align:center">**Social Context**</div>

To incorporate social context into an examination of employers and educational credentials, several sociological perspectives offer insights. Economic sociology provides a broad orienting view. More specifically, institutional theory applied to education provides the chief theoretical approach, supplemented by insights from labor market sociology and the sociology of work, occupations, and organizations to offer a perspective that is not present in human capital or conflict perspectives. By incorporating these viewpoints, the examination then shifts the focus to individuals who make hiring decisions existing *within a set of social structures*, including organizations, labor markets, and institutions, such as occupations and schools, that may influence their *beliefs and actions*.

As a broad orienting view, economic sociology provides some general guidelines for the examination of employers and educational credentials. First, economic sociology emphasizes the importance of meaning. Understanding the *meaning* of an action, like

using educational credentials in hiring workers, is a key aspect of an approach informed by economic sociology. Rather than infer meaning from the action based on a set of assumptions, a perspective rooted in economic sociology seeks to empirically investigate the actual set of meanings underlying an action (Smelser and Swedberg 2005). Understanding meaning is an important part of social context, in that individuals are embedded in a set of cultural ideas and understandings that shape their actions and beliefs (Zukin and DiMaggio 1990).

Second, economic sociology emphasizes the importance of social structures. Rather than individuals' acting independently based on their preferences for hiring workers (as human capital theory would suggest) or acting according to the direct dictates of perpetuating class advantages (as conflict theory would suggest), individuals are acting within a social structure (Smelser and Swedberg 2005). According to Granovetter (1985), an individual's "attempts at purposive action are instead embedded in concrete, ongoing systems of social relations" (Granovetter 1985). This perspective focuses on actors and the social ties that influence their actions rather than focusing on actors as independent of their social context. Thus, this examination of educational credentials from the employers' perspective must critically examine these within the social contexts in which they operate. From this perspective, labor markets include social ties among individuals, as well as bureaucratic structures related to jobs and careers (such as state regulation of occupations) and specific organizational characteristics (such as a likelihood to have long worker tenure or the presence of internal labor markets) (Granovetter 1988).

In this section, I discuss the following three different aspects of social context: institutional, labor market, and organizational. For each level, I examine their potential influence on the role of educational credentials in the hiring process.

Institutional

Institutional theory offers a different perspective on the role of educational credentials in the hiring process than human capital or conflict perspectives. According to Bills' (2003) review of research on educational credentials, institutional theory has rarely been applied to the examination of educational credentials but has the potential to offer insights previously unexplored with other theoretical approaches. In particular, institutional theory as applied to education developed by Meyer's (1977) theory of "education as an institution" has potential to inform this area of study but has not been examined in the study of educational credentials. This perspective provides a new approach to understanding the meanings employers attribute to educational credentials when they use them in hiring.

Broadly speaking, institutions are part of the social structure that serves to "provide guidelines and resources for taking action as well as prohibitions and constraints on action" (Scott 2008). Institutions shape the beliefs and practices commonly held as legitimate in society, where legitimacy refers to "a condition reflecting perceived consonance with relevant rules and laws, normative support, or alignment with cultural-cognitive frameworks" (Scott 2008, p. 60). Legitimacy governs behavior among organizations through three key influences: regulative, normative, and cognitive-cultural (Scott 2008). Regulative influences are directly coercive, as in the case of government regulations. For example, employers may have to follow certain hiring procedures

because they are required by law. Normative influences influence behavior through

obligations and expectations. For example, employers may seek to follow the hiring

practices of other similar employers because it is perceived as the right thing to do.

Cultural-cognitive influences are a shared meaning that shapes the viewpoints of actors.

Shared beliefs and assumptions about the world may play an important role how

organizations and hiring managers use educational credentials in hiring. For example,

employers may have specific ideas about the role of a college graduate. That is, they may

believe that college degree holders should assume certain positions rather than others.

Meyer (1977) provided a detailed framework on educational credentials from an

institutional perspective. Meyer asserted that education creates categories of knowledge

that correspond to positions in society that people may occupy. These categories are

associated with certain expectations on how individuals should behave and be treated by

others in accordance with the role. Categories of expert knowledge are established that

carry authority for those who teach and study this knowledge. The categories become

widely known and carry meaning on their own apart from the actual qualities found in the

members of these categories. That is, the credentials take on a meaning of their own

within society. Educational credentials are a force that create and legitimize categories of

knowledge and expertise which then provide that legitimacy to their holders and the roles

they can assume. As Meyer (2007) stated:

> The student has a role and an identity in what is really a national and
> global institution. The role and the identity thus have transcendent
> meanings: they are known by the student and everyone around the student,
> including all sorts of gatekeepers in society. (p. 209)

In this sense, Meyer argued that credentials have meaning beyond the qualities students

may have gained through their education. Rather, the meaning of credentials may be

found independently in the meanings attributed to the social role credential holders occupy and their subsequent reactions to occupying that role, or not occupying that role in the case of non-credential holders.

Beyond acting as a means of preparing people for roles in society (as argued by human capital theory) or of allocating people to roles in society (as argued by conflict theory), Meyer (1977) argued that education changes the roles available in society and changes the individuals who occupy these roles. In this view, because individuals are often assigned to positions based on their educational credentials, they expect to be treated in certain ways consistent with these positions and develop behaviors consistent with these positions. They effectively become socialized to the roles because of the social expectations associated with the positions. Thus, categories created by the education system have transformative effects on society by creating legitimate roles and expectations.

Furthermore, education has the authority to create new categories of knowledge that may change and expand over time as new categories of knowledge are created. Meyer described how education is a system of legitimation, as roles are institutionalized at the societal level via education. In this way, both categories of knowledge and expertise are formed by the categories within the education system. Credentials create legitimate roles in society; legitimate roles in society correspond to categories in the education system. This applies to a range of arenas, including work and citizenship. For example, in the realm of work, with the development of computer technology, the academic field of computer science began and has evolved, where it did not exist just decades ago. Colleges and universities eventually developed programs in computer

science and, thus, created the category of computer scientists with certain expectations about them as a category.

Viewed from this perspective, the education system has the authority to certify individuals to hold particular positions associated with their educational credential. These categories of knowledge correspond to personnel roles and define entry into these roles so that in order to take on the role, an individual must first obtain the education associated with that role. Because these categories are seen as authoritative, either by law and custom, they must be taken into account by rational actors. With regulated occupations like nursing, for example, where a credential is a legal requirement to gain licensure, these roles are reflected in law and hiring practices are acted upon by regulative influences. With unregulated occupations, such as technicians, the set of customs or practices related to educational credentials are more significant; and, in this case cultural-cognitive influences play a dominant role in how employers use them.

According to Meyer (2007), the *understanding* of the link between credential holders and occupational roles is more important than the actual link. That is, the use of credentials to assign people to occupational roles is often done without direct assessment of the relevant knowledge but rather based on the understanding of what the credential means about its holder. The shared understanding of credentials' meaning among members of society is a key aspect of institutional theory that sets it apart from other theoretical approaches on credentials. From the perspective of institutional theory, the importance of credentials lies in their social meaning, more so than the particular attributes credentials holders may have gained through education. Rather, the link

between educational credentials and occupational roles is associated with distinct effects on graduates associated with these social meanings. As Meyer (2007) stated:

> The individual knows he or she is a student, acquiring credentials and therefore possessing certified knowledge and capacity. Others know it, too. Under these conditions, it is less relevant whether the knowledge actually exists or is possessed by the student. (p. 208)

While the institutional perspective argues that educational credentials have taken on meanings strongly associated with particular occupational roles in society, it is agnostic on the actual qualities that may be present in an individual (discussed in more detail below) and the ways these qualities may have come about. The individual qualities may or may not be linked to the credential in actuality, so individuals with the same qualities may vary widely although they hold the same degree. Their education may or may not have led to the creation of particular qualities. The more important issue is the perception of a linkage between the credential and the social (in this case, occupational) role.

Institutional theory is inherently focused on social structure, that is, on society as a whole, and the effects that come from the societal level qualities of education—not individuals and the qualities in the individuals that result from education. Hiring managers as institutional gatekeepers are an important part of the social structure. When examining what hiring managers think about credentials, it is possible to assess the qualities they think degree holders possess and the extent to which these qualities reflect those gained from the social role corresponding to the degree. In this sense, multiple social roles are relevant, including the general category of the degree, as well as the more specific category of the occupational role.

A key aspect of Meyer's theory on education as an institution is that educational credentials hold meaning relative to the roles in society they are created for. Thus, any

examination of educational credentials must be specific to the credential and the social role it is associated with. In the case of educational credentials intended for workforce preparation, such as associate degrees, it is particularly important to examine these credentials relative to the occupations for which they are intended to prepare people. When employers seek to fill positions they are likely to have "broadly shared understandings of how much education is appropriate for different jobs" that are shaped by the broader societal field and are codified within employers (Bills 1988c).

Associate degrees were designed for jobs located in the middle of the occupational spectrum (the full spectrum ranges from jobs that do not require any education to those that require a graduate degree). These "middle skill jobs" typically do not involve manual labor nor are they professional jobs but rather semi-professional jobs that may require a body of specialized knowledge and skill. According to the Occupational Outlook Handbook, over 230 jobs require "some postsecondary training, an associate degree, or possibly a bachelor's degree." Some of these jobs are subject to formal state licensing procedures, such as nursing and allied health occupations, so job entry requirements are clearly codified by law. These jobs are subject to institutional influences that are regulative. However, many other jobs, such as those in information technology and business, do not have any formal legal requirements for entry. In these cases, it is less clear how credentials are used in hiring, but they may reflect a stronger role for institutional influences that are cultural-cognitive. In these cases, the meaning of the credential is determined first and foremost by the shared societal understanding about it.

In many occupations, credentials are not legally required for entry. In these cases, employers can use educational credentials as they choose—they may emphasize them or not. Given the nature of the U.S. system, the use of educational credentials is likely more based in cultural-cognitive influences rather than regulative or normative influences; thus, the meanings employers hold about credentials as cultural-cognitive influences are potentially important influences on their use. For these occupations, the use of a credential might vary depending on the strength of the connection between the occupation and the credential. The role of cognitive-cultural influences on the meaning of credentials is most important and likely to be linked to the use of credentials. Understanding the link between meaning and use in instances when cultural-cognitive influences are most significant is the goal of this research.

In addition to the social role commonly occupied by degree holders, Meyer (1977) argues that the meaning of credentials is also determined by the educational institutions that grant them. Educational institutions have authority to issue credentials and it is this authority that gives the credentials their meaning and legitimacy. This authority is referred to as the institutional charter; it allows educational institutions to develop categories of knowledge and certify individuals in these categories. Higher education in the form of four year colleges and universities is very institutionalized with universities drawing on centuries of custom and practice that form the basis of legitimacy for their organizations (Meyer, Ramirez, Frank, and Schoffer 2007).

The institutional charter of the community college, however, is less clear than that of the university. While the community college has adopted some of these qualities of the university, such as its academic schedule and procedures, it is a different kind of

organization with different goals and pressures in serving a wide range of students with different educational needs. In spite of these differences, Rosenbaum et al. (2006) argue that community colleges emulate four-year colleges in order to gain access to the same type of social charter that four-year schools clearly have in society. Given the relatively short history of the community college, its institutional charter may be less clearly defined than that of the university, though it exists in close relationship with the more clearly defined institution of the university.

Public opinion research indicates that Americans do hold some common conceptions about the community college as an institution; it is seen as a gateway to opportunity via transfer programs and as a source of workforce training (Gould 2004). These impressions reflect the multiple missions of community colleges; however, it is not clear how the conceptions of these missions interact; that is, whether both conceptions are held simultaneously and if so whether one dominates. That is, if people believe community colleges exist to provide workforce preparation, how do they also see their transfer role? Most importantly, it is not clear how these general impressions of the community college are held specifically among employers or how they might be translated into hiring practices and the use of the associate degree in employment.

Prior research has examined the nature of the institutional charter of community colleges (Deil-Amen and Rosenbaum 2004; Rosenbaum, Deil-Amen, and Person 2006). Community colleges attempt to build institutional charters through established academic practices, bolstering the value of their degrees through accreditation in the model of four-year colleges and universities; they seek to tap into the authority of the bachelor's degree rather than actively promote relationships with employers to create value for the associate

degree. This finding highlights the possibility that different types of institutional charters may exist for the community college. The community college may have a charter or seek to have a charter that is similar to the charter held by four-year colleges and universities. Alternatively, they may have a charter that is more specific to their unique role and is cultivated through means that are different from four-year colleges and universities.

In a broad sense, the concept of the role an associate degree holder occupies in society may also not be as well understood or fully institutionalized as that of other credential holders. The associate degree holder occupies a position between two institutionalized education levels: the high school degree and bachelor's degree. Ideas about typical conceptions of high school, for example, are very well entrenched (Metz 1989). However, associate degrees are less common in the general population than high school degrees or bachelor's degrees. Thus, associate degrees in contrast may be less fully institutionalized than these other types of education, implying that employers may have less formed conceptions on associate degrees relative to other degrees. At the same time, the bachelor's degree rather than the associate degree may be seen as the "legitimate" form of college education (Cohen and Brawer 2003).

Meyer (1977) also proposes that the education institutionalized for particular roles varies across societies with different educational structures. But, this variation may also exist by local labor market, particularly because of the local nature of the associate degree. Labor market sociology further supports the importance of the specific context of the local labor market resulting from the dominant industry and its corresponding average education level in the local population. I discuss this possibility in the next section.

Labor Market

While institutional theory provides a broad lens to examine the meaning of credentials, labor markets are yet another layer of the social structure in which employers operate when evaluating educational credentials as part of their hiring decisions. Labor markets may vary in their characteristics in ways that may influence the role of educational credentials in the hiring process. Regional labor markets may be particularly important in the case of the associate degree, since community colleges are known to be local institutions, often with connections to local employers. These connections have the potential to influence how employers view these institutions, their institutional charter, and the credentials they confer. I discuss the more general variation across labor markets and the implications for understanding the meaning of educational credentials in this section.

Labor markets can be conceived most abstractly as any number of arenas in which the exchange of labor occurs between workers and employers, including institutions and practices relating to the exchange of labor and structures that influence how workers are distributed among jobs (Kalleberg and Sorensen 1979). Beggs and Villemez (2001) made the distinction in terminology between "regional labor markets" and "local labor markets." Local labor markets refer to the geographically-bounded area where workers for a particular firm come from, whereas regional labor markets refer to a set of geographically-bounded areas of overlapping local labor markets. This study focuses on the regional labor market as an important unit of social structure within which employment occurs; however, throughout the discussion I use the term labor market to refer to the regional labor marker.

Since workers and employers are both, to some extent, place-bound, labor markets are of particular interest. While both workers and employers can be mobile, their on-going systems of relationships tend to occur within geographically bound regions, particularly for certain types of occupations that are not highly specialized, usually lower and middle level (Beggs and Villemez 2001). Thus, the issue of regional labor markets is particularly relevant to workers prepared at community colleges.

Labor markets are embedded in their context, and reflect social relations of this particular context. Social relations have an important role in defining regional labor markets through the interaction of political structures, institutional forces, legal regulation of the workplace, and cultural practices accepted the labor market (Peck 1996). Rather than simply functioning as commodity markets, labor markets have distinctly social relations as a core part of their functioning, where institutional and political forces play an important role.

According to Peck (1996), labor markets, at their core, are socially regulated and locally variable. They vary in their structure and dynamics, including labor market governance, acculturated labor practices, and labor qualities. They are socially regulated, which includes a variety of functions from "formal labor law to socially embedded work norms" (Peck 1996). Labor markets are locally constituted by a set of contextual factors, including unions, family structure, and cultural norms. Thus, employers' hiring behavior is likely to be grounded in and influenced by the particular context of their local labor market.

Differences in industry or occupational concentrations across labor markets may be associated with important differences in how they operate. The industry and the

economy in labor markets can influence how they operate by fostering a particular set of

work norms within the labor market (Peck 1996). For example, the presence of large

unionized employers in a labor market can lead workers to expect the protections and

stability of union jobs; the workers may not be prepared to handle the demands of

entrepreneurship and thus be less likely to develop new businesses in the case of layoffs.

The variation in the concentration of occupational groups in geographic areas reflects the

historical and industrial trends in that area, and can operate at a very local level

influencing employers decisions on where to locate their businesses and employees

decisions on where to live (Hajha and Salmon 2005; Hanson and Pratt 1992).

Even with a common industry, two labor markets may have different institutional

and organizational dynamics based on historical differences (Beggs and Villemez 2001;

Saxenian 1994). For example, Silicon Valley and Boston's Route 128 had different labor

market cultures, with Route 128's focus on large corporate employers who promoted

loyalty and long-term careers, versus Silicon Valley's focus on continual movement

across firms and new ventures (Saxenian 1994). The workers and employers in each of

these labor markets held different views and practices related to hiring, despite their

shared industry. These localized labor markets contain embodied expectations and

knowledge about employment.

Given community colleges' local focus, the climate of their labor market may be

an important influence on how employers value their credentials. The associate degree is

potentially a more local credential, since its holders are not likely to be highly mobile in

the labor force. According to Beggs and Villemez (2001), labor mobility tends to be low

for most groups in the population but this is particularly the case for lower and middle

level occupations, such as those typically considered associate degree level or "middle-skill" jobs. Since community colleges are thought to have ties to their labor markets, these relationships may also be another potential factor that may influence how employers view associate degrees. Community colleges may have specific relationships with certain employers or industries in their labor markets and the relative emphasis on these types of efforts may also vary considerably by labor market (Dougherty 2003; Harmon and MacAllum 2003), further emphasizing the importance of examining the particularities of the labor market. Depending on the extent community colleges take an active role in influencing employers to value their credentials, employers may hold different ideas about what associate degrees mean.

Evidence from wage differentials across geographical areas suggests that local labor markets may have specific underlying structural relationships; however, the understanding of why those differences exist has been limited by the available data (Hanushek 1981). Possible explanations for these differences include explanations related to demand for workers, such as the type of industry concentrated in a local area or the amenities offered (i.e., whether the area is safe and pleasant), and explanations related to the supply, such as the composition of the labor force (Hanushek 1981). The industry concentration may form an agglomeration economy where complementary businesses operate and labor markets with shared knowledge and social connections may create a particular type of culture within a labor market. Some recent analyses of wage returns to education by metropolitan area, specifically the bachelor's degree, find that noticeable differences in returns do exist and argues these returns are associated with the desirability of living in certain local labor markets (Black, Kolesnikova, and Taylor 2009). In cities,

such as Seattle, which are considered highly desirable to live in, the returns to education are particularly low relative to other labor markets that are less attractive to live in. However, because these findings are based on analyses of wage records, it is difficult to determine the actual reasons why this wage premium exists or how it is translated into employers' hiring practices.

Given the different cultural practices within a labor market derived from its particular industry focus and labor force composition, actors within local labor markets may have particular outlooks or ways of being that are specific to their labor market. In this way, employers' views of educational credentials and their hiring behavior may be grounded in and influenced by the particular climate of their local labor market. The understanding of associate degrees may be based on more broadly institutionalized ideas about these credentials and their link to occupations, or more localized ideas that are generated in the context of the distinct local labor market. Furthermore, it is not clear to what extent the understanding of community colleges as an institution is linked to the understanding of credentials and the extent to which this is also based in the local labor market.

Thus, the examination of the broad ideas about associate degrees is inherently intertwined with the examination of local labor market variation in those ideas. Ideas from economic sociology challenge the idea that meanings are held broadly across society and raise the question of whether these meanings may be more locally derived and based in labor markets.

Organizational

Beyond the wider labor market, organizations are the actual location where the employment relationship occurs. As such, special attention is required to understand their role and potential influence on this process (Rubery 2005). It is essential to understand how work is structured in its organizational context and to recognize education's role in organizational processes that allocate opportunities for jobs (Baron and Bielby 1980). When examining how employers use credentials in the hiring process, their specific organizational context might influence hiring managers' use of and meaning attributed to educational credentials. The meaning might reflect organizational preferences or may simply be hiring managers' preferences, but either way the result is variation by type of organization. A better understanding of how organizational context relates to educational credentials can help illuminate underlying reasons why credentials have meaning and are used in hiring workers.

Industrial sociology (also industrial relations and the sociology of work) provides insights to guide an examination of the role of credentials. From this perspective, Cornfield and Kane (1998) argue that three concepts are important in understanding organizations and their influence on work: bureaucracy, career mobility, and embeddedness (informal relations within a bureaucracy). More specifically, Marsden (1996) found several organizational level characteristics are associated with different hiring practices. Large firms spend more resources in hiring and take a longer time to hire workers; those with internal labor markets do more thorough screening; those with unions use more formal, impersonal methods; and those in the public sector are less likely to use informal methods to recruit and spend longer reviewing applications. Staffing procedures

tend to be used across a range of jobs within the organization and, thus, staffing is an "organizational phenomenon."

Given that organizational attributes are associated with differences in hiring practices, they may also influence the role of educational credentials in that process. To examine these issues more closely, this study focuses on two particular organizational characteristics which may influence the meaning and use of education: level of bureaucracy of the organization and the extent to which the organization has opportunities for advancement or internal labor markets. These organizational characteristics in particular may affect the institutional effects of education, and are potentially related to how this role is viewed within the organization, and thus the educational credentials employers might seek in workers.

The level of bureaucracy of an organization, typically associated with size and sector, may be an important attribute in how and why employers use educational credentials in hiring workers. Public sector organizations have different hiring practices, even for the same kind of work, because of their distinct organizational contexts and pressures to have more formal hiring requirements (Scott 2003). Bureaucracy is postulated to increase institutional influences on organizations (Scott and Meyer 1991). In fact, more bureaucratized organizations, such as large organizations or public sector organizations, are more likely to rely on more standard hiring requirements, such as educational credentials. Cohen and Pfeffer (1986) found the presence of a personnel department is associated with credential requirements and the presence of a union was associated with lower educational requirements. While they attribute this finding to the political interests of the personnel departments within the organization, it is possible that

the presence of a personnel department at the time of survey in the study (1967) might also represent the degree of bureaucratization.

Organizational level attributes such as degree of bureaucracy can influence how organizations react to cultural-cognitive influences on their use of educational credentials. For example, organizations with large numbers of employees may develop standard hiring procedures to simplify the hiring process or to create a sense of fairness in this process. The use of educational credentials for these reasons adds another set of meanings to the credentials that are unique from the qualities possessed by the individual.

Through internal labor markets, workers may advance within the organization to jobs of greater skill and/or responsibility. Internal labor markets are groups of related jobs within an organization where workers may progress through their career building on their prior skills and knowledge (Althauser 1989; Rosenfeld 1992). These are typically found in larger, more bureaucratic organizations. They may also be conceived as existing over an occupation regardless of organization (Althauser 1989); however, for the purpose of this study, they are conceived of as relative to the organization. Internal labor markets are viewed as one component of bureaucratic employment systems (Bridges and Villemez 1991). There is evidence to support the idea that bureaucratic employment structures are more likely in larger organizations, in organizations with labor unions, and organizations with higher SES; there is some evidence that they are more common in government organizations. Educational credentials are not as important to promotions as they are for hiring, but they can still play a role in employers' hiring decisions as in cases in which they hire with the idea of an eventual promotion in mind (Bills 1988c; Bills 1992b).

Depending on their internal labor markets, organizations might conceive of roles differently, and thus have different practices regarding credential requirements that are institutionally influenced. That is, organizations might vary in whether they prefer the associate degree; they may all think an associate degree graduate is technical with few "soft" skills, but they might conceive of the technician role differently; those who say they want technicians to grow into more advanced jobs might prefer bachelor's degrees, because these would allow for career advancement into management that is contingent on "soft" skills. Internal labor markets increase the range of social roles that might be used as a comparison for making sense of educational credentials.

In these ways, the organizational context can serve to increase or decrease the linkage between the use of educational credentials in hiring and specific occupational roles. These practices may also be associated with different meanings attributed to educational credentials depending on the organizational context. In this examination of social structure, the organization is an important level of analysis in understanding the context in which actual hiring occurs.

Meaning and Use of Educational Credentials

Since employers do not closely inspect every worker for their actual qualities before they are hired, their *perceptions* of credentials may form the basis for their assessment of the qualities the worker possesses. These perceptions may be formed from a variety of sources and may or may not reflect the actual qualities possessed by workers. To understand the social structure related to education, the *actual* qualities are not as important as the *perceived* qualities among employers. This difference between perceptions of qualities versus the presence of the actual qualities is a key distinction in

my study. Thus, I seek to examine employers' reports of the qualities they seek in workers' and the qualities they believe credentials represent or the meaning they attribute to credentials, rather than the actual qualities present in workers or their jobs.

Of key importance in this approach is to examine credentials in relationship to occupational roles. This relationship is intrinsically important to understanding the meaning of credentials, because institutional theory posits that credentials create and take on value in relationship to social roles. In this way, how employers perceive and judge the qualities they expect in credential holders might be linked to the qualities employers look for in their ideal worker. Assessing the qualities found in credential holders relative to occupational role yields a more practical assessment of how the credential is valued in the actual hiring process. Employers say they want specific qualities when hiring workers, though it is not clear how much they think those qualities are aligned with educational credentials. Employers might think associate degrees signify certain qualities and bachelor's degrees signify other qualities, but the importance of these qualities may depend on the occupational role. Using institutional theory as a way to understand educational credentials requires an examination of the meaning and use of credentials, and the link between the two when hiring for specific roles. To the extent employers hold meanings about a credential that are consistent with the occupational role associated with the credential, the cultural-cognitive meanings of the credential would be expected to translate into action. That is, the meanings employers hold about credentials would lead to their use in hiring. These ideas about meaning and their translation into use may be shared broadly across the society or within a more local social structure, like the local labor market.

As institutional theory on the effects of education as an institution suggests, this study seeks to examine employers perceptions of the qualities associated with educational credentials in relationship to the social roles associated with these credentials. The unique contribution of institutional theory to the examination of educational credentials is to highlight the importance of social roles in understanding their meaning. However, unlike other theoretical perspectives, institutional theory does not propose specific meanings associated with educational credentials.

To make sense of employers' perceptions of credentials or the meanings they attribute to credentials, I draw on prior theory and research on educational credentials. Although this prior theory and research does not examine these issues in their social context, nor does much of it examine employers directly, it does provide some insight on potential ideas of what employers might think about credentials.

A review of the major theoretical perspectives provides an instructive baseline for examining the potential meanings employers attribute to educational credentials, particularly qualities often attributed to socialization. Despite the lack of direct data from employers, these perspectives posit ideas on employers' ideas that can serve to organize this examination. Thus, I review the major perspectives in economics and sociology to identify their presumptions about the meanings employers associate with educational credentials. In addition, I examine some studies that are outside an explicit theoretical perspective but focus on the qualities employers report they seek in workers. Then, I discuss various research approaches that examine the types of qualities employers seek in workers for certain jobs. These analyses prove useful for thinking about the qualities employers might expect in credential holders.

Human capital theory argues employers value education because it develops skills and knowledge in individuals related to productivity at work (Becker 1993; Mincer 1958; Schultz 1961). In this theory, the more education an individual has, the more productive he/she is. Human capital distinguishes between general and specific skills related to work; it views education as creating skills and knowledge in individuals, regardless of whether they attain an educational credential. It does not specify how employers hire workers nor does it assess their skills and knowledge. Rather, it assumes employers are privy to the skills and knowledge workers possess as a result of education. Based on this framework, education and educational credentials both mean the same thing: skills and knowledge related to increased productivity at work.

Signaling and screening theories provide another outlook on what employers think about education. In contrast to human capital theory, these theories propose an explanation specifically about educational credentials, and how and why employers use them in hiring workers. They make a distinction between qualities gained in education and qualities that are not a result of the education itself but are signified by the credential. Signaling theory suggests that credentials provide information on a person's ability. Rather than provide information on what the person learned in school, the credential indicates that the person has ability; typically this ability is conceived of as an unmeasureable trait related to productivity. Screening theories also suggest that persons with credentials have more ability, and that as a result, these students are selected into colleges and then are able to persevere to get the credential. They suggest that higher education functions primarily as a filter, and does not necessarily add any skills to its graduates; however, they do not clearly define the exact nature of the "ability" or the

"innate unobservable characteristic" that differentiates those with credentials from those without (Arrow 1973; Riley 1976). Screening may occur in a variety of ways: sorting within the educational system to schools or programs of varying levels; direct screening of ability by performance tests such as admissions tests; and self-screening of individuals into education that best fits their ability (Riley 1979). Screening by the educational system and by performance tests presumably provides information on ability, whereas self-screening may provide information on both ability as well as interest. Signaling theory is fairly non-specific when discussing the traits educational credentials may represent to employers; rather, these are generally referred to as traits that are related to the worker's productive capacity (Spence 1973). Screening and signaling theories both essentially propose that credentials serve to sort workers by traits or unobserved abilities that are related to their productivity on the job. In addition to demonstrating their cognitive abilities, the choice to pursue education may be viewed as a reflection of the person's love of learning, their ability to learn, as well as their ability to cooperate or delay gratification (Weiss 1995).

Sheepskin analyses propose that a part of the wage return associated with educational credentials is due solely to the credential and not the actual education. That is, someone with the equivalent amount of education would make less than someone with the same amount of education and a credential. The reasons for this difference according to the sheepskin perspective are similar to the reasons for labor market returns as proposed by signaling and screening perspectives; that is, employers value credentials because they indicate the worker has an unobserved trait like ability or determination. Further examinations of sheepskin effects also suggest the meaning may be different

depending on the level of the credential and the time spent in school (Flores-Lagunes and Light 2007). That is, for those with credentials, a longer time in school is viewed negatively, but for drop-outs a longer time in school is viewed positively. Sheepskin effects have also been found to be specific to particular degrees, as prior research has shown bachelor's degrees have greater sheepskin effects than high school degrees and evidence on sheepskin effects from associate degrees is mixed and varies depending student demographics (Ferrer and Riddell 2001).

Economic studies typically infer the meanings employers attribute to credentials through using wage records data. Most common are human capital analyses that examine wage returns to educational credentials and infer that if workers with more education are paid more than workers without, it is because the education is valuable to the employer in terms of increased worker productivity. However, as previously discussed these analyses do not, by the nature of the data, provide direct evidence that employers believe education is related to productivity and, if it is related to productivity, in what ways they believe that it is. These studies also typically do not make a distinction between the credential and the amount of education. Studies based in signaling theory attempt to make this distinction, but also typically rely on wage returns as evidence of employer preferences. For example, (Altonji and Pierret 1997) examined how employers learn about the productivity of new workers in order to examine the premise of signaling theory that employers use credentials to hire for unobservable qualities they value. They concluded that employers do learn and adjust workers' wages based on their actual performance, which they conclude is more comparable to ability test scores than educational credential; thus, they argued that signaling effects are small. While this

finding provides interesting evidence, it does not provide any insight into what employers are doing or why; the meanings and mechanisms related to hiring and promotion within employers remain unexplored. It is possible some employers with particular organizational constraints are less able to adjust their wages differentially across workers than other employers are. These different employers also may have different ways of using credentials upon hiring workers.

Conflict perspectives suggest a variety of qualities that may exists in credentials holders. Those from the credentialist perspective, including Collins (1971, 1974, 1979) and Brown (1995, 2001), posit a series of qualities associated with credentials that are a departure from perspectives more closely linked with human capital perspectives. Collins described how education teaches status cultures, that is, ways of being associated with status groups in society. These ways of being are tied to cultural preferences and behaviors, such as language, conversation style, opinions, aesthetic tastes, shared activities, values and manners (Collins, 1971; Brown, 2001). In this view, schools provide elites with training on elite culture and provide non-elites with respect for elite culture. Either way, education focuses on providing qualities that are linked to status cultures that stratify society. In this view, status groups control entry into various occupations, so the link between educational credentials and occupations is important (Collins, 1971; Brown 2001). Employers are less focused on technical skills, but rather seek workers who are properly socialized to the workplace (Collins, 1971; Brown, 2001). Normative control is a key characteristic that employers seek in workers, according to this perspective (Collins, 1974). Brown (2001) argued credentials can have a variety of meanings including economic, cultural and political. The economic meaning includes

technical skills used in the workplace; however, he argues that these have been poorly measured. Political and cultural meanings include qualities such as general language and communication abilities. These also include qualities such as the ability to manage others and take on leadership in a corporate environment, as well as loyalty to the organization, and the abilities to communicate, learn, and get along with others—a quality he argues is gained in college education (Brown, 1995).

According to the control perspective of Bowles and Gintis (1976; 2002), the correspondence principle is at work in education; that is, schooling is intended to replicate the conditions of the workplace in order to socialize students for their eventual roles in the workplace, either as management or as compliant workers. This perspective does not make the distinction between education and educational credentials; rather, the qualities associated with education are also associated with educational credentials. Personality traits are important for determining success in the workplace as employers seeks to hire workers with these characteristics. Both cognitive and noncognitive traits are important. Cognitive traits include both innate ability and skills and knowledge gained from education. Noncognitive traits include motivation and attitude; employers want workers who are "socialized" for work. They seek workers who are likely to avoid misconduct, have enough self-efficacy to work hard, and will avoid conflicts with their co-workers.

Research on educational outcomes provides insight into the qualities credential holders may possess and employers may expect to find. Research has documented the economic returns to cognitive skills and noncognitive traits gained through schooling (Farkas 2003). Cognitive skills may be measured in a variety of ways, such as using the

AFQT, IQ tests, or achievement tests in math or reading, or they also may be conceived of as broad skills or as job-specific skills (Bowles, Gintis, and Osborne 2001; Murnane, Willett, and Levy 1995). They include skills such as language and math ability, memory, subject knowledge, and reasoning. Noncognitive traits are less easily measured, and include work habits like organization, discipline, and perseverance as well as other traits such as leadership and self-confidence (Farkas 2003; Heckman and Rubinstein 2001). In their synthesis of research on college outcomes, Pascarella and Terenzini (2005) discussed several types of possible outcomes including the following: verbal, quantitative, and subject matter competence; cognitive skills and intellectual growth; psychosocial growth; attitudes and values; and moral development. Also, research on wage returns to particular skills and traits in workers attempts to infer employer demand for these skills and traits. These studies indicate that there are wage returns to both cognitive and noncognitive skills (Bowles, Gintis, and Osborne 2001; Farkas 2003). Furthermore, changes in the wage returns provide some indication of change in employer preferences. For example, Murnane, Willet and Levy (1995) found that the wage returns to cognitive skills as measured by ability to perform basic math functions increased from 1978 to 1986.

In a review of employer studies, Natriello (1989) concludes that most employers report in surveys that their biggest concern is the attitudes of entry-level workers, followed by basic skills, including communication and problem solving skills. His review also concludes that a major deficit to most studies of employer needs is the lack of a clear conceptual basis to ask about employee characteristics, and suggests the use of a

theoretical framework to make sense of their response. Despite this limitation, I review these studies in a general way.

Employer surveys provide some insight into the qualities employers seek in workers. Cappelli (1997) found that employers (as reported in surveys) broadly find workers are lacking in computational and problem solving skills, as well as inadequate in reading and writing skills. Furthermore, in entry-level workers, he found that employers report writing and verbal communication skills are lacking. He argues that a common skill employers often report workers are lacking is in attitudes towards work, such as a positive personality, motivation, and prosocial behavior. Levy and Murnane (2004) argue that employers seek particular skills in workers since computers have taken on an important role in the economy and routine manufacturing and administrative support jobs have declined. These skills are expert thinking (detailed knowledge and the ability to use this information to solve problems) and complex communication (non-rules based communication that often involves building trust and rapport).

This prior theory and research provides insight on the types of qualities that are important to consider when examining the role of educational credentials in hiring workers. In particular, the distinction between cognitive and noncognitive skills is commonly made in this literature; these qualities are those that would typically be gained through the socialization process of education. Cognitive qualities signify knowledge and abilities in areas directly related to doing the technical work a job requires. Noncognitive qualities signify traits that have to do with the social aspects of work; they may also signify traits that may be viewed as more cultural in nature. Generally human capital theory emphasizes cognitive traits, though it may also encompass noncognitive traits. On the

other hand, conflict theories tend to emphasize noncognitive traits but may also interpret cognitive traits through a conflict perspective. Since this research does not seek to adjudicate between these two perspectives, I use these distinctions made in the literature to help broadly organize the qualities employers associate with degrees. In addition to this broad set of qualities generally attributed to socialization, I seek to explore the existence of institutional effects of education through the perspective of employers. That is, I seek to determine whether hiring managers associate particular qualities with credentials that are not a result of socialization but rather a result of the social role available to the person as a degree holder.

Using this theoretical framework, I examine in detail a specific case of educational credentials and their role in hiring for a specific occupation: information technology (IT) technicians. I examine the educational credentials that may correspond to this occupational role and their meaning and use among hiring managers in their labor market and organizational context. In the next chapter, I discuss the different levels of selection for the case study (i.e. the occupation, labor markets, and types of organizations) and the rationale for their selection. I then discuss how the case study was executed, including data collection and analysis.

CHAPTER III: DESIGN AND METHODS

This study applies an institutional approach to understand employers' meaning and use of educational credentials when hiring workers in specific labor market and organizational contexts. It is exploratory in nature, guided by the theoretical framework, rather than specifically testing a set of theoretical hypotheses. It seeks to examine the following overarching research questions: How are the meanings hiring managers attribute to educational credentials shaped by institutionalized ideas about social roles? How does the labor market and organizational context relate to the meanings hiring managers attribute to educational credentials and how they use them when hiring IT technicians? This chapter outlines the study methodology, including the rationale for the case study selection, the key data sources, and the analytic strategies used.

The Case Study

Several aspects of this study design are uniquely designed to generate data on this previously unexamined issue. The study uses a case study design approach to examine the issue at multiple levels of analysis (the labor market and the organization type) embedded within the larger case (the IT technician occupation). The embedded case study approach allows for attention to be addressed to particular sub-units of interest within the larger case (Yin 2003). The study examines the broad case of IT technicians, an unregulated occupation that is potentially open to community college graduates. Within the case of IT technicians, the study examines multiple levels of analysis of the labor market, focusing on the contrasting labor markets of Seattle and Detroit, and organization type, examining different organizations by size and sector that employ IT technicians. The multiple levels of analysis allows for a richer understanding of the role

of context in employer hiring practices (Miles and Huberman 1994). The cases are purposefully selected to examine differences across labor markets and organization types, where theory suggests variation might be expected. Purposeful sample selection driven by theoretical reasons is a unique characteristic of qualitative research that allows for the exploration of theoretical issues of interest (Lamont and White 2009).

Qualitative interviews allow for the deeper exploration of the meaning associated with particular concepts, as well as a more detailed understanding of organizational processes. In particular, the strength of this type of in-depth qualitative approach is the ability to examine in detail the *how* and the *why* (Small 2009). This type of qualitative design allows for the examination of certain phenomena, in this case, social meaning and processes, that cannot be examined through purely quantitative data (Lamont and White 2009; Maxwell 2005; Miles and Huberman 1994; Rubin and Rubin 2005). According to Yin (2003), the case study method "allows investigators to retain the holistic and meaningful characteristics of real-life events"; thus, the case study is well suited to answer the questions of "why" and "how," particularly in situations where the outcomes cannot be manipulated as in an experiment. While it would be possible to create an experimental situation to examine the use of credentials in the hiring process, it is not possible to examine the meaning associated with credentials.

Occupation: IT Technicians

The selection of one occupation for case study is important to this approach, which focuses the importance of credentials' meaning relative to social roles. By examining just one occupation, the study can focus on perceptions of credentials relative to that occupation. Furthermore, to examine the role of labor market and organizational

dynamics, it is important to focus on one particular occupation and the role of educational credentials. Previous studies of how employers value educational credentials have included a broad range of occupations. These studies are unable to examine occupations consistently across different contexts because they encounter problems comparing across the multiple occupations included. A more in-depth and focused exploration of one specific occupation is needed to understand the labor market and organizational context related to the meaning and use of educational credentials. This type of comparison essentially seeks to hold the variation in occupation relatively constant by selecting the same occupation. While occupations do have some degree of variation within themselves, their commonalities are strong enough to differentiate them from other occupations.

This study focuses specifically on the IT technician occupation. IT technicians include computer and network support staff, who typically handle both software and hardware needs in a range of organizational settings. IT technician is a good case study occupation for several reasons. First, the IT technician occupation is unregulated, so the credential is not specified by any law or regulations and its use may be more dependent on a range of organizational factors and/or cultural-cognitive meanings. Thus, the use of credentials will emerge from employer practices more so than from government regulation. Because IT technician jobs comprise an unregulated occupation that is commonly prepared for at community colleges, it provides a particularly good case study in which to examine the value of community college education. The lessons from this case may apply to other community college occupational areas that are unregulated, such as other technical areas, as well as a range of business fields.[4] Thus, understanding the

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[4] In contrast, issues within health care occupations are likely to involve a different set of institutional influences because of the highly regulated nature of those occupations.

specific issues within IT technician jobs may help inform the many other non-regulated occupations for which that the community college offers degree programs.

Second, IT technicians exist in a wide range of labor markets and organizational settings—nearly all organizations have some type of IT infrastructure that requires staff. IT technicians are situated in a wide range of companies across diverse industries. In fact, a central characteristic of the field of IT is that the majority of IT workers are employed in non-IT producing companies performing IT tasks. According to the Information Technology Association of American (ITAA), 79 percent of IT workers are in non-IT firms (Information Technology Association of America 2004). A large number of IT jobs exist in non-IT industries, since they relate to supporting organizations' IT infrastructure. As long as organizations use computers in their work, they require IT technicians to maintain these systems. Because it is such a common occupation in a variety of settings, the case study of information technology (IT) technician jobs provides an opportunity to examine the role of educational credentials for the same jobs in a range of different organizational and labor market contexts. An examination of IT technicians allows for the examination of hiring practices for a common occupation across a wide range of contexts with potentially different practices related to hiring.

Finally, while IT technicians may be prepared through a range of educational programs, including associate and bachelor's degree, the technician position is a very common occupation for which community college graduates prepare. In fact, IT degrees are common awards at the associate degree level, with nearly 30,000 awarded in 2007 (US Department of Education 2009). IT technician jobs are often cited as a key employment opportunity available to people without a bachelor's degree. IT technician

jobs, specifically computer and network support technicians, are an occupation open to community college graduates, as well as to four-year college graduates (Bureau of Labor Statistics 2009). The diversity of pathways into the IT technician role provides potential variation in employers' use of educational credentials in the employment of IT technicians. And, when employers do use educational credentials in the employment of IT technicians, this use likely indicates a stronger preference for credentials. For this reason, the IT technician occupation provides a good case to examine the meaning of the associate degree. Not only does the degree exist in relationship to the occupational role, it also exists in relationship to the other pathways to enter this occupation, in particular the bachelor's degree. Since both degrees can lead to the same occupational role, this comparison allows for greater insight into the social roles associated with each degree. In order to understand the context for assessing the meaning of the associate degree, the bachelor's degree must also be examined since it is also a potential credential for entry into these jobs.

Prior research on technicians highlights the complexity of this newly emerged occupation. According to Barley and Orr (1997), several traits characterize the technician occupation, including the centrality of complex technology to the work; the importance of contextual knowledge and skill; and the importance of theories or abstract representation of phenomena. These various types of knowledge for technicians suggest the need for formal education for technicians, although the actual educational requirements are not clear in this occupation. More recent research on IT technicians suggests that the associate degree is not highly valuable but rather the bachelor's degree

is a preferred requirement for entry into these positions (National Workforce Center for Emerging Technologies 2008).

To minimize the degree to which educational credentials are confounded with experience, this study focused on employer preferences for educational credentials when hiring entry-level workers, that is, workers without a significant amount of prior work experience. However, work experience may also be a qualification employers seek in new workers (Bills 1990). But with entry-level workers the role of work experience will be less than more advanced workers who, by definition, have more work experience.

Labor Markets: Detroit and Seattle

To examine the role of educational credentials in a labor market context, this study focuses on two labor markets: Detroit and Seattle.[5] These two labor markets are both large metropolitan areas but with different dominant industries. This study does not explore variation that might exist between metropolitan areas and rural areas but rather focuses on the variation that might arise from different industry focus and its corresponding differences in educational levels. They serve as contrasting case studies, with the intention of identifying common patterns as well as diverse variations (Miles and Huberman 1994).

Given Seattle's information technology focus and Detroit's automotive manufacturing focus, these labor markets provide a contrast in terms of predominant industry. Detroit is more manufacturing-oriented, with the headquarters of the "Big Three" automotive companies (General Motors, Ford and Chrysler), though this is changing given the troubling economic climate in the automotive industry. Seattle is

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[5] The metropolitan statistical area (MSA) for the Seattle labor market includes three population centers: Seattle, Bellevue and Tacoma. The Detroit area includes several counties including Wayne, Lapeer, Livingston, Macomb, Oakland, and St. Clair.

more service-oriented, with a high technology focus brought by the dominant presence of the Microsoft headquarters, though it also has its share of manufacturing (such as Boeing). While both labor markets have been experiencing difficulties as a result of the Great Recession, Detroit has been facing much greater challenges that pre-existed the national decline associated with the Recession (Vey and Friedhoff 2010). With numerous lay-offs and plant closings, the Detroit labor market has been struggling with high unemployment rates and a large number of manufacturing workers 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 economic climate in comparison (Wial and Friedhoff 2010).

Yet, despite these differences in their industrial bases and economic conditions, both labor markets include IT technician jobs. Many of the IT jobs are in support functions in organizations where IT is not the main service or product. IT technicians rather act as a support to other workers in the organization (Darr and Scarselletta 2002). For example, IT technicians may support the complex manufacturing systems of the automotive industry or the specific issues in the health care system (Jenkins 2001; The Saflund Institute 2007).

Largely as a result of their dominant industries, these two labor markets provide contrast in terms of average education levels: 36 percent of Seattle residents hold a bachelor's degree or higher, compared with 21 percent of Detroit residents. Moreover, 87 percent of adults in Detroit hold a high school degree or higher versus 91 percent in Seattle. Table 3.1 summarizes the average educational attainment in the two labor markets. In a labor market context where the bachelor's degree is more the norm, such as

Seattle with its high concentration of bachelor degree holders and a highly information driven economy, the institutionalized value of a bachelor's degree may be even stronger, and the community college degree may hold less positive value. In contrast, a labor market where bachelor's degrees are less the norm, such as Detroit, with its lower concentration of bachelor degree holders and a manufacturing-based economy, may be associated with a relatively higher value for community college degrees.

Table 3.1: Educational Attainment in Case Study Labor Markets

Educational Attainment in Population >25 Years (%)	Detroit	Seattle
Less than 9th grade	4	3
9th to 12th grade, no diploma	10	7
High school graduate (includes equivalency)	29	23
Some college, no degree	23	23
Associate's degree	8	9
Bachelor's degree	10	24
Graduate or professional degree	10	12
High school graduate or higher	81	91
Bachelor's degree or higher	21	36

Source: U.S. Census, 2005 American Community Survey

Despite their different levels of average educational attainment, both labor markets have relatively large community college systems. The Seattle area has nine community colleges and the Detroit area has six community colleges. Given the large size of the community college systems in these two labor markets, they have a significant presence in the community and thus hiring managers may have a similar likelihood of having some knowledge of or interaction with a community college.

Some evidence of variation in the role of educational credentials in employment across these two labor market comes from studies of wages returns. Black, Kolesnikova, and Taylor (2009) found variation in labor market returns to the bachelor's degree, based on calculations from 2000 Public Use Micro Sample of the US Census. In Seattle, workers with a bachelor's degree earn 47.2 percent more than high school graduates,

compared to 40.5 percent in Detroit. Kolesnikova (2009) found variation in labor market

returns to the associate degree relative to the high school diploma in Detroit versus

Seattle. The returns are higher in Detroit than in Seattle for White men (21 percent versus

4 percent), Hispanic men (34 percent versus 17 percent), and White women (32 percent

versus 25 percent); in contrast, the returns are lower in Detroit than in Seattle for Black

women (19 percent versus 29 percent) and Hispanic women (25 percent versus 39

percent). The reasons for these differences are not clear, but they do provide an indication

of the different roles educational credentials play across these two labor markets.

Organization Types

To examine the organizational context, I made several methodological judgments

in the process of selecting employers for this study. I purposefully selected the sample of

employers to include five different organizational types: large private sector, small

private sector, public, IT support and temporary placement. I selected these types because

of their variation in bureaucracy and internal labor markets, and their potential

association with the meanings associated with the effects of education as an institution.

To examine these five organization types with characteristics potentially related to

the use of educational credentials in the hiring process, I selected organizations based on

size, sector, and IT focus. Organization size is important because of its significance in

degree of bureaucratization and opportunities for advancement. Prior studies that

demonstrate differences in employers' hiring practices with regards to educational

credentials by organizational size exist (Collins 1979; Sakamoto and Chen 1991;

Stolzenberg 1978). Larger organizations are likely to have more positions available for

workers to advance to because of their greater likelihood of having internal labor markets

(Scott 2003). Sector (public and private) like size is associated with different levels of bureaucracy (Bridges and Villemez 1991; Scott 2003). Public sector organizations in particular are influenced by public service regulations and greater adherence to other regulations regarding hiring (Scott 2003).

IT support organizations and temporary placement organizations are example of organizational forms that reflect new types of organizational employment arrangements in the new economy (Kalleberg, Reynolds, and Marsden 2003). Both of these organizations are uniquely IT-focused. IT support organizations are entirely focused on providing IT support services and temporary placement organizations are often highly specialized in a few technical areas like IT support. They are increasingly important given the move by some organizations to outsource their IT functions. Temporary placement organizations also play a role in mediating the employment relationship and, thus, have a unique perspective on the hiring process (Kalleberg 2000; Kalleberg, Reynolds, and Marsden 2003). Since these organizations do not hire workers for the internal operations of their organization, I did not include them in the analysis of organization types. But, given their important role in the hiring process for IT workers, I included temporary placement firms in the sample when examining labor markets to ensure their representation as part of the labor market.

These organization types are each distinct in their characteristics, and offer potentially different views of the meaning and use of credentials in the hiring of IT technicians. They have potentially different ways of organizing their work for IT technicians, and different ways of operating that might influence how they use credentials in the hiring process, as previously described in Chapter II.

Data Collection

The data used for this study was collected as part of a research project on technician education based at the Community College Research Center (CCRC), funded by the National Science Foundation's Advanced Technology Education program. The project included college partners at the National Workforce Center for Emerging Technology at Bellevue College (formerly Bellevue Community College) in the Seattle area and Macomb Community College in the Detroit area. The larger project included other analyses related to employment including a quantitative analysis of community college IT students' employment outcomes (Van Noy and Weiss 2010).

With the support of staff from the two partner colleges, I conducted in-depth interviews with employers in the two labor markets from January 2009 through August 2009. These data provide the primary insights into the meanings employers hold about the associate degree and how they use credentials in the employment of entry-level IT technicians. Data from employers' job descriptions provide a supplemental source of data on employer preferences and requirements for educational credentials. The multiple sources of data provide opportunities to triangulate across the different sources of evidence (Yin 2003). This section discusses the specific processes related to recruiting employers for the interviews, identifying IT technicians in their organization, and conducting interviews with hiring managers.

Purposeful sampling was important to ensure that the cases included have the information needed to answer the research questions (Maxwell 2005). I sought to set clear boundaries on which employers would qualify for the study, since determining boundaries, that is, defining which cases fall into the limits of the study, is a key step in

sampling (Miles and Huberman 1994). With the selection of employers, the criteria for study participation was that the organization had hiring managers who had experience hiring an entry level IT worker in the past three years. This typically meant the organizations had large enough IT operations that they employ IT staff, including IT technicians. Large private sector organizations had more than 1000 employees, and small private sector organizations had 50 to 999 employees. I generally excluded organizations with less than 50 employees, as they are unlikely to have enough experience hiring workers for the kinds of jobs focused on in this study. The one exception in the criteria for size was for IT support organizations, which were included regardless of size because of their high concentration of IT workers.

Employer recruitment was a key challenge for this study. The recruitment of employers to participate in the study was handled with care, since the employers had no direct incentive to participate. Previous field studies with employers indicate the importance of developing a consistent strategy before beginning contacts with employers (Andersen, Borun, Kristensen, and Karnoe 1995). They highlighted the importance of developing and building off of relationships with employers since they may not have strong incentives to participate in research. In this sense, approaches such as snowball sampling have the advantage of identifying research participants who may not have otherwise participated and may be more willing to speak freely and share more information, when approached by a researcher referred to them by a trusted contact (Lamont and White 2009). When planning for employer recruitment, I sought to use multiple sources and to utilize networks and preexisting relationships when possible to recruit selected employers to participate in the interviews. I also developed standard

advance recruitment letters to send to employers, as well as recruitment emails and phone protocols to use for recruitment and follow-up (as I discuss further in the next section).

Several sources of employers were available in each labor market to select the sample of employers. These sources included: Dun and Bradstreet's million dollar list of firms in Seattle and ReferenceUSA list of firms in Detroit;[6] employers who have 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, such as IT professional groups and human resources groups. Some of my contacts with employers were facilitated by preexisting relationships either with industry groups or with the colleges; however, since this would be a self-selected group of employers, I intentionally sought to include a mix of employers from different sources to make sure I included those with no immediate connection to the colleges. I sought to ensure the selection process included employers who had preexisting relationships with the community colleges as well as those who did not have a relationship.

The larger CCRC project included focus groups with employers in both labor markets before the interviews. These sought to generate preliminary evidence on employer perspectives on community college credentials and IT technicians, and the employers' relationships with community colleges. Many contacts with employers were made in the process of recruiting for the focus groups that later were used to recruit for the interviews. In some cases, employers were also willing to participate in the interviews. Because the focus group recruitment formed a starting point for the

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[6] These two lists are both comprehensive lists of employers in each labor market. The Dun and Bradstreet list became unavailable to me through the Columbia University library system at the time I sought to select the Detroit list; instead I was able to access ReferenceUSA.

recruitment for the interviews, I first describe the recruitment process for the focus groups.

To recruit for the focus groups, I compiled a list of all potential employers in each labor market using lists of businesses from either Dun and Bradstreet or ReferenceUSA. These lists included information on names of key contacts within the firms, sometimes including human resources and information technology managers. I restricted the list to employers with at least 50 employees so that the employers would be large enough to employ IT technicians. Because the lists included all employers in the labor markets and were very large, I randomly selected a sub-set of employers to target for recruitment by size and sector. I used this method merely as a way to narrow down this large list, as this sample was ultimately not intended to be a probability sample of employers in the labor markets.

To construct the list for Seattle, I obtained the list of employers in King County from the Dun and Bradstreet Million Dollar database, which includes all employers with at least 20 employees or $1 million in revenue; this full list included 16,406 employers. This list includes employers' multiple locations in separate records. Of these employers, I screened those with 50 or more employees, and then selected 160 for the focus group recruitment. To construct the list for Detroit, I obtained the list of employers in the Detroit MSA from the Reference USA database which includes all employers in the labor market; this full list included 3,374 employers. Of these employers, I selected 196 for focus group recruitment. These lists, in combination with lists from the partner colleges in each labor market, were used as a basis for targeting outreach to recruit employers to participate in the focus groups. To further select employers I used several criteria. I

sought to ensure the sample included employers from organization types of interest to the study (as discussed in Chapter II). The employers I selected included the following organization types: large-private sector (1000 or more employees), small and medium-private sector (50 to 999 employees), and public sector (NAICS code of 92).

In addition to the lists of employers, we relied on lists of employer contacts provided by the college, and also sorted into the same organizational categories. While we did not recruit a specific number of employers of each organization type to the focus groups, I sought to ensure that a mix of employer size and sectors was included. I later used these lists of employers to recruit for the interviews.

I oversaw the employer recruitment for the focus groups in both Detroit and Seattle. A letter of invitation and a one-page description of the study were sent to the list of employers selected from the industry lists (see Appendix A for letters sent to employers for the CRCC study). They were typically sent to the human resources contact or the information technology contact, if this contact information was available. Otherwise, the letter was sent to another high level contact within the organization, such as a Vice-President. In the Seattle area, two consultants who had previously worked on projects with the career center at the partner college conducted the outreach to employers. They targeted the selected employers on the industry list via phone and email contacts; they also used their existing social networks to recruit these selected employers and other local employers to participate in the focus group.

In Detroit, I followed a similar process to recruit employers; rather than consultants conducting the initial outreach, key staff members from the partner college's career services office conducted outreach. The career center director sent an initial email

to selected employers inviting them to participate in a focus group. Other career center staff followed up with phone contacts to recruit employers. When employers were not able or willing to participate in the focus group, the consultants and/or career center staff also mentioned to them the possibility of participating in a shorter interview later in the study. When employers expressed interest in participating in an interview, this interest was noted for later follow up. Once we contacted employers, we screened them to make sure they employed IT technicians and had some recent experience hiring IT technicians (that is, within the past three years).

To recruit employers for the interviews, I pursued several strategies. For all employers I recruited for the interviews, I sent letters inviting their participation in the study (see Appendix A for a copy of the letter of invitation). I followed up with employers from the list of contacts identified through the focus group recruitment. I sent emails and made phone calls to this group of employers, including some who had participated in the focus groups and some who had not, to recruit employers for one-on-one interviews. In addition, I asked employers who participated in interviews to suggest referrals for other employers who might be interested in participating in an interview. On several occasions, employers suggested referrals, gave contact information for others, or helped facilitate contact with others. These referrals led to several additional interviews. This process of snowball sampling often led to contacts within organizations that might not have been possible or would have been otherwise difficult to make (Merriam 1998).

In both labor markets I also contacted several local associations in human resources and information technology to ask for contacts from among their membership.

These associations provided outreach and specific contacts of hiring managers who were among their membership, which led to several interviews with employers. In Seattle, one IT organization sent an email invitation to its members inviting them to participate in the study, and several responded to the invitation. In both labor markets, I attended meetings of these local organizations and recruited employers from these meetings.

The mixed sources of employer recruitment, i.e., college contacts, labor market lists, referrals and industry associations, helped ensure variation in employers and their motivations for participation. While it is not possible to eliminate the possibility that employers who choose to participate in a study like this one may be different from other employers, the range of sources helps to counter that concern. In addition, the intentional sample selection on ideal types of organizations ensures a wide range of employer perspectives are represented in the study. It could be argued that those employers who were college referrals might have stronger ties to the college, and therefore be more sympathetic to the community college and associate degrees. However, the range of other sources of interview contacts helps to balance this potential bias in perspectives.

I sought to have a sample of employers in each labor market that includes some employers of each organization type. Table 3.2 indicates the organization types of the interviewees in each labor market. I interviewed a total of 37 hiring managers in Detroit across 28 organizations and in Seattle a total of 41 hiring managers across 30 organizations. The hiring managers included a balance of both genders: 49 percent of interviewees were women. As with the focus group employer recruitment, I screened the interviewees to make sure they employed IT technicians in their organization and they had some experience hiring IT technicians within the past three years. I collected basic

information on the hiring managers' backgrounds including their education. They did not differ in a meaningful way in terms of the educational credentials across labor markets or organization types.

Table 3.2: Summary of Hiring Managers in Sample, By Organization Type

Organization Type	Detroit	Seattle
Large	9	13
Small	10	16
Public	6	5
IT Support	8	3
Temp	4	4
Total	37	41

Within each organization I focused on entry-level IT technicians, defined as staff in computer and networking support roles. These jobs included a range of job titles. While these positions are all entry-level IT technician jobs, they included a range of job titles with some variation in job responsibilities. The responsibilities of these jobs were similar in their focus on providing computer and network support within an organization. Entry-level IT technician positions all require workers to interact and communicate with end-users (either internal computer users in the organization or external clients of the organization). They vary to some extent in the degree to which they are scripted, and require workers with technical knowledge to follow fairly well-specified directions to solve problems, versus more actively troubleshooting problems and researching longer-term IT solutions for the organization. The more advanced positions to which IT technicians are promoted tend to include more independence and involvement in long-term planning and research. However, despite some degree of variation in these positions, they were selected to be similar enough to be considered the same occupational role. Table 3.3 includes a list of common job titles related to the positions that were the focus of these interviews.

Table 3.3: Common Job Titles for IT Technicians

Job Titles
Customer Service Representative, Customer Services Technician I, Customer Services Technician II, Customer Support Engineer I, Customer Support Technician I, Client Support Technician
Help Desk, Help Desk Analyst, Help Desk Support Technician, Help Desk Technician, Technical Helpdesk Representative
Technical Support Specialist, Tier 1 Technical Support, Technical Support Administrator
Desktop Support Technician, Desktop Support, Desktop Support Specialist, Desktop Support 1-3, Desktop Support Macintosh Technician
IT Technician, Information Systems Technician, Information Technology Specialist, Information Systems Specialist, IT Support Center Technician
Network Support Specialist, PC/Network Support Specialist, IT Specialist (Network), Network Specialist
PC Technician, Workstation Support Analyst, PC/Network Support Specialist, Computer Technician, Onsite Support Specialist
Support Engineer, Support Technician, System Support Technician, System Technician, Systems Support Specialist

Source: Interviews with hiring managers.

I conducted most interviews in-person at a location most convenient to the employers—typically at their worksite or a café near their worksite or their home. In Seattle, I conducted the in-person interviews over a three week period in January 2009. In Detroit, I conducted the in-person interviews during a two week period in March 2009 and a one week period in May 2009. In addition, I conducted some interviews in both Seattle and Detroit via phone during the spring and summer of 2009. I recorded all interviews using a digital voice recorder and had them transcribed verbatim by a transcriber. Each interview was typically one hour in duration, but some were shorter, at 40 minutes, and others longer, at 1 hour 20 minutes. The interviews with hiring managers and human resources managers were semi-structured.

The interview guide included questions about the interviewees' background in terms of their education and work experience, the IT operations at the organization, the hiring process of IT technicians, hiring preferences and education, and awareness of community colleges. See Appendix B for guides for the interviews. Focus groups previously conducted for the CCRC study provided some insights for developing these interview guides.

Before beginning the interview, I provided participants with information on the study and its goals. I explained their rights as human subjects and gave them each a consent form. They had time to review the study information and consent form, as well as ask any questions about the study, before starting the interview. I asked each participant for permission to audio record the interviews before beginning the interview, and informed them that they could stop the recording at any time or decline to answer any question for any reason. All participants agreed to be audio recorded. I ensured the confidentiality of all participants throughout the research process in the following ways: all references to specific organizations or individual names were removed, and codes based on the general labor market, organization types, and the hiring managers' role in the organization were used to identify the interviews throughout the analysis. At the start of the interviews, I was sure to clarify with participants my independence as a researcher, not affiliated with a specific local community college.

I sought multiple sources of data from each organization to provide more comprehensive information. When available, these multiple data sources provided an opportunity to triangulate among data sources to ensure internal validity (Merriam 1998, others). I conducted interviews with IT hiring managers and human resources

representatives. While these two types of respondents bring different perspectives to the hiring process, focus group data indicate their outlooks on the hiring of IT technicians are not that different. However, when possible, I interviewed both the IT hiring manager and the human resources manager within the same organization.

In addition to the interviews, I sought to collect supporting documents from the employer on their IT technician positions. In advance of the interviews, during the email and phone exchanges to set up the interview time and location, I also asked all hiring managers to provide job descriptions or job postings for their IT positions. When they were available during the interview, the job descriptions provided another check on the interviewees' reports on their use of educational credentials in the employment process. If the interviewee did not provide the job descriptions in advance of the interview, I asked them again during the interview and again in an email follow up thanking them for their participation in the interview. Not all interviewees were able to provide job descriptions—either because they simply did not provide this information, largely because of limits on their time, or this information was not available. In addition to the limited availability of these data, they may not all include the same level of detail; however, many do provide information on their most important qualifications, like preferences or requirements for educational credentials.

Analysis

The analytic strategy focused on examining the meaning hiring managers ascribed to educational credentials and how they used credentials in hiring IT technicians across labor markets and organization types. In this section I describe the process of conducting the analysis of the interview data and job descriptions. First, I describe the overarching

analytic approach to the analysis. Then, I detail how I managed and coded the data.

Finally, I describe the major concepts I used to code the data.

In this examination, the unit of analysis was the hiring manager as I sought to examine the hiring managers' perceptions and actions within their social context. In this way I sought to examine the influence of social structure, in terms of labor markets and organization types, on the perceptions and actions of individual hiring managers. Since I spoke with hiring managers, I can say more directly I am measuring the meanings they as individuals held about credentials. I am less able to measure the organization level meaning of credentials, because I did not design the study in a way to capture kind of information that might measure organizational meaning such as collecting multiple measures at all organizations or collecting more in-depth measures in each organization. While I gathered information from hiring managers in the interviews, it could be argued that the individual hiring manager serves as a proxy for the organization. To explore the possibility of an organizationally-informed meaning, I examine the meanings held among hiring managers in the different organization types. To the extent that meanings are specific to the organization types, they might reflect particular orientations towards credentials at that type of organization.

As with meaning, I conduct the analysis of use at the level of the individual hiring manager, since they are the individuals who make decisions in their organizational context. For the use of credentials, I have multiple measures from many employers. When I have job descriptions, I consider these a reflection of an organizational level policy or outlook on credentials and I compare these data with the data from hiring

managers. This comparison provides an indication of how individuals are following organizational policy.

For this analysis I used NVIVO qualitative analysis software program to code the interview transcripts for themes. I imported the transcripts from all interviews into an NVIVO file. The names of each transcript included codes indicating their labor market, organization type, and interviewee role in the organization, as well as identification numbers associated with each unique interview. Since the interviews were transcribed in their entirety, I used the autocoding function of NVIVO to broadly code the transcripts to differentiate between interviewer and interviewee. Autocoding automatically codes the transcripts based on formatting in the text of the transcripts that, in this case, differentiated between the speakers. Later, this coding allowed for the separation of responses from multiple interviewees who participated in the same interview, which occurred in four instances.

My strategy for coding the data included two steps. First, I read the interview transcripts in their entirety, and coded the text into six general categories of information. These general categories included the following: meaning of education, use of education, organizational, community college as institutions, organization of work, and interviewee background. Then, I reviewed the data sorted into these general categories to conduct more detailed coding. This allowed me to have a greater focus on particular general topic areas of each broad category which allowed for more careful coding and development of detailed codes. Before I began the detailed coding, I reviewed the general codes from all interviews in a particular general area in order to generate a set of preliminary codes to use for the detailed coding. I began the detailed coding by using these preliminary codes I

generated from this initial review. Then during the coding process, I sometimes found

that additional codes emerged so I added these to the list of codes.

After the detailed coding, I reviewed the data within the final set of codes and

examined their parameters to ensure that they were sufficiently distinct from each other.

In some cases, particularly for more abstract concepts like the meaning of credentials,

after this review I conducted further rounds of revisions to the codes, where I combined

some of the more detailed categories where their overlap was high. For example, upon

this review, within the general category of the meaning of education, I combined the

detailed code for "initiative" with "motivation" since these two were actually very similar

in content. I developed a codebook to indicate the definition of the coding category,

including when to use the code and when not to use the code, as well as examples of

quotes that fit into that coding category (Luker 2008). The use of a codebook helped to

guide the refinement of these categories to ensure that categories were conceptually

related and the resulting list of codes were mutually exclusive (Merriam 1998). The final

codebook with examples of quotes from hiring managers is included in Appendix D.

Once the codes were finalized I used NVIVO to generate tables that were

exported to Excel indicating the presence or absence of a particular coding category for

each interviewee. Using Excel, I aggregated the responses to provide summaries of hiring

managers' responses by labor market and organization in order to determine if there were

any meaningful trends across these dimensions of social structure. When examining the

data, it was important to determine in advance standard criteria to judge whether

differences between labor markets and/or organization types were meaningfully different.

Since this was not a probability sample, the standards of probability sampling do not

apply; however, it was still important to be able to interpret a difference in a standard way. Throughout this analysis, if the labor markets differed by 15 percent or more, I interpreted the difference as meaningful; if the organization types differed by 20 percent or more, I interpreted this difference to be meaningful.[7]

Throughout the analysis, I used NVIVO to examine quotes in each of the detailed categories. Using the detailed codes I created in NVIVO, I examined the data to identify quotes that provided good illustrations of the key concept identified by the code. I used these detailed codes to explain and illustrate the significance of each category particularly as I contrasted the labor markets and organization types. Detailed quotes play an important role in illustrating the issues and mechanisms occurring within each level of analysis (Maxwell 2005). For example, to better understand the dynamics related to the use of credentials within organizations, I sought to explore patterns in use and the underlying organizational reasons that may explain that use.

I examined several key concepts in the coding process. These concepts have multiple means of measurement, but each, as a whole, represents an important broader concept central to this analysis. The two key concepts I sought to explain in this analysis are the meaning of credentials and the use of credentials. I explain these two concepts first. The remaining concepts are: employers' views and experiences with community colleges and organizational issues in terms of bureaucracy and opportunities for promotions for IT technicians.

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[7] Though this is not a statistical sample, these differences are sufficiently large that they would also meet the standards of statistical significance. The 15 percent difference would reflect a difference significant at just above the .05 level and the 20 percent difference would reflect a difference significant at just below the .05 level.

I derived the meanings associated with credentials and their linkage to occupations from interviews with hiring managers. Hiring managers responded to open-ended questions about the qualities they would expect to find in credential holders, and the qualities they are seeking in IT technicians. These open-ended questions allowed hiring managers to report whatever qualities were most meaningful and salient to them. I reviewed these responses for common qualities mentioned across the interviewees and were categorized by broad categories of qualities including cognitive and noncognitive factors, as discussed in Chapter II.

To examine employers' use of credentials, I used multiple sources of data, including interviews with human resources hiring managers and IT hiring managers and job descriptions. Specifically, these data sources include: interviewees' reports on their use of educational credentials in hiring IT technicians; organizations' job descriptions' mention of educational credentials for entry-level IT technician positions; interviewees' reports on their use of educational credentials in the promotion of IT technicians; organizations' job descriptions' mention of educational credentials for positions in the career progression after the IT technician position; and interviewees' reports on the education levels of their current IT technician staff.

I presented employers' use of educational credential preferences using two categories: bachelor's degree and associate degree.[8] Since employers did not absolutely and inflexibly require a credential, their use of credentials represents their use as a preference rather than a requirement. Employers' use of educational credentials is tabulated in two ways: all educational credentials mentioned and the highest educational

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[8] I did not ask hiring managers to distinguish the field of study of the degree but rather asked about the degree type more generally since the goal of the study was to examine broad ideas of the associate degree.

credential mentioned. Comparing the highest educational credential mentioned with all credentials mentioned provides an indication of whether the employer is willing to accept a range of educational credentials in addition to the highest educational credential they mention. Typically, the data are presented on all credentials preferred to provide the broadest picture of how credentials are used in the employment of IT technicians. When relevant, findings on the highest credential preferred are also discussed. High school degree was not a focus of this study, since IT technician jobs typically involve an associate or bachelor's degree, and was so rarely mentioned as a preference that it is not included in the tables; rather, the discussions about education with employers, revolved around what type of college education they preferred. Furthermore, the analysis does not focus on IT industry certifications, although they have some role in hiring IT workers, because I sought to specifically focus this analysis on the role of degrees.

In addition to hiring managers' reports of their use of educational credentials, job descriptions for entry-level IT technician positions provide another indication of employers' preferences for education. As formal documents generated by employers to describe the duties and requirements, job descriptions provide greater insight into organizational-level preferences. Job descriptions correspond to the unique organizations included in the study. Despite efforts to collect job descriptions from all organizations, some interviewees simply did not provide them, even after follow up attempts. About one third of the organizations provided job descriptions for their IT technician positions. Among those who did not provide job descriptions, it is not clear how many did not have them to provide versus simply did not follow up. However, given the time constraints

upon many interviewees, it is more likely they had job descriptions and did not provide them.

Since job descriptions are typically organizational expressions of preferences, they are more likely to list education when it is an actual preference for the job as well as the level of education they think they can get for the job. While the hiring managers express their sincere preferences, their preferences likely reflect their ideal candidate as opposed to the candidates they expect they can really get. Alternatively, it is also possible hiring managers may express genuine preferences for education that are not embodied in organizational documents like job descriptions.

Both the hiring managers' reports of the use of credentials and the employers' job descriptions references to credentials are limited, in that they indicate intention (particularly in the case of job descriptions) and some combination of intention and past experience (in the case of hiring managers' reports of the use of credentials). However, one indication of employers' actual behavior is their current IT workforce. Since this information is based on interviewees' reports rather than data collected directly from the IT workers, to some extent it is limited by their recall. However, this information still provides a reasonable sense of how preferences for credentials translate into actual practice.

Another key issue in shaping hiring managers' perceptions of community colleges is their views and experience with higher education. In the interviews, I asked hiring managers open-ended questions first about their perceptions of higher education institutions, including community colleges. These open ended questions yielded insights on their perceptions of the community college as an institution of higher education, which

may inform their perceptions of the credentials. I coded their responses according to common themes that emerged and corresponded to existing notions of community college mission, particularly the workforce and transfer missions. To assess the experiences that might have shaped their perceptions, I asked a couple of questions regarding their experiences with community colleges. First, I asked hiring managers about their personal educational backgrounds. I also asked them open-ended questions about their experiences with community colleges.

Promotions from IT technician jobs provide some insight into the use of educational credentials for the IT technician role, as employers may consider credentials indicative of a potential worker's prospects of advancing within the organization to higher level positions. This was coded based on the data from the general category on organization of work. As with hiring, employers' use of educational credentials for promotions was part of the interview. I asked hiring managers open-ended questions about IT technicians' chances of moving up within the organization from this role. This information was also supplemented in some organizations by job descriptions for positions to which IT technicians might be promoted. These descriptions were collected when possible; however, these were available in even fewer instances than job descriptions for IT technician positions. Organizations did not provide job descriptions for a variety of reasons, including a lack of position to promote to and their lack of response to the request for job descriptions. Despite the lack of complete data on these job descriptions, those that were available provided some useful information to supplement other measures of use.

Another important issue discussed with hiring managers relates to aspects of bureaucracy in the organization, including the formality in the hiring process, the strength of the involvement of the human resources department, and the clarity of the promotion process. These factors emerged from questions about the process used in hiring IT technicians and the process for their promotion once in the organization. If any of these factors existed in an organization, the organization was then coded as having a bureaucratic orientation as an organizational influence.

In the next two chapters I report on the findings on the overarching research questions. In Chapter IV, I provide the findings related to employers' meaning and use of educational credentials in hiring IT technicians in their labor market context. Then in Chapter V, I discuss the findings in their organizational context.

CHAPTER IV: CREDENTIALS IN THEIR INSTITUTIONAL, LABOR MARKET, AND ORGANIZATIONAL CONTEXT

In this chapter, I present findings on the meaning and use of educational credentials in their specific context. Throughout this analysis, I assess the meanings of educational credentials relative to social roles as viewed by Meyer's theory of education as an institution and examine whether variability in meaning exists depending on labor market and organizational context. While I comment on the extent to which these meanings support other theoretical perspectives, my primary goal in this analysis is to assess the extent to which employers' meaning and use of credentials is linked to their labor market and organizational context.

First, I examine the meanings hiring managers attribute to educational credentials, how these meanings relate to the qualities they expect in IT technicians, and how this is linked to their labor market context. I then examine how hiring managers actually use educational credentials in hiring across labor market contexts and assess hiring managers' perceptions of and experiences with community colleges as a possible influence on the meanings they attribute to educational credentials. Finally, I examine potential organizational level influences related to educational credentials in the hiring process, including the degree of bureaucracy in organizational hiring practices and opportunities for advancement within the organization, and their implications for the use and meaning of educational credentials.

As I discussed in Chapter III, I consider differences of at least 15 percentage points between labor markets and 20 percentage points between organization types to be meaningful, although these are not to be interpreted as statistically significant because of

the nature of this sample and the approach of this study. It is not a randomly selected sub-sample of the population of employers. Instead, I examine these particular labor markets and organization types to yield a better, more in depth understanding of the meanings their hiring managers attribute to credentials as well as the existence of labor market and organizational factors related to meaning and use as suggested by theory. When the analysis focuses on organization type, temporary placement agencies are excluded. Since they work with multiple organizations, they are therefore not structured in a way to yield insights on the specific organizational issues that are the focus of this analysis.

Institutional and Labor Market Context

The meaning of educational credentials is often implicitly understood through the assumptions of different competing theoretical frameworks. By directly assessing the meanings hiring managers attribute to educational credentials, I seek to provide a better understanding of these meanings directly grounded in the perspectives of hiring managers. Their views are particularly important to understand because the meanings they attribute to credentials may influence their hiring decisions. To guide this analysis, I use Meyer's institutional perspective, which views educational credentials relative to social roles and the educational institutions that issue the credentials.

To organize the potential meanings associated with educational credentials, I also draw from major theoretical perspectives, including human capital theory and conflict theory, as discussed in Chapter II. Since the distinction between cognitive and non-cognitive attributes arises in many theoretical discussions, as I discussed in Chapter II, I group these specific qualities by whether they pertain to cognitive or non-cognitive attributes. In addition, employers mentioned qualities they would expect to find in

credential holders that reflect credential holders' reaction to their social role. These institutional effects of education are in many cases negative, and would potentially detract from an applicants' attractiveness, although not all of these qualities were negative. Finally, some other qualities did not fit in with any of these broad categories, so I list these qualities separately in another category.

Guided by labor market theory, in the examination I compare the meanings hiring managers across the two labor markets hold about credentials to evaluate their commonalities and differences. According to labor market sociology, differences in culture and practices among employers exist across labor markets; these may be due to differences in industry and/or levels of education in the population. These differences may affect how hiring managers approach the hiring process and how they view educational credentials. As such, in this examination of educational credentials I sought to examine the similarities and differences across labor markets between the qualities hiring managers attributed to associate and bachelor's degrees and the qualities they sought in IT technicians. Specifically, I sought to identify which qualities were most often associated with the credentials, the differences between the credentials in how often the expected qualities were mentioned, and how these varied across the two labor markets.

To provide direct evidence on the meaning of educational credentials, I asked hiring managers to describe what they thought an associate degree or bachelor's degree would tell them about a potential worker for an IT technician position. I asked them open ended questions about the qualities they would expect to find, rather than offering them a predetermined list of qualities, so a wide range of responses were possible and emerged

in the interviews. In addition, in the interviews, I asked hiring managers to discuss the qualities they look for when hiring IT technicians. As with the discussion of the qualities expected in credential holders, hiring managers responded to open-ended questions so their responses represent a wide range of possible qualities they seek.

This examination is based on hiring managers' beliefs and perceptions, not on actual measurement of skills and qualities found directly in degree holders. However, hiring managers' perceptions are, perhaps, even more significant, because they form the basis for the information used to make decisions in the hiring process. Hiring managers' perceptions of what educational credentials mean and their perception of the qualities they want in technicians may guide their use of educational credentials when making hiring decisions more so that the *actual* qualities. To the extent hiring managers tightly link the meaning of credentials to the occupation, the credentials are institutionalized and are potentially likely to be used in hiring decisions.

In this analysis, I took several steps to examine the qualities hiring managers associated with educational credentials and their link to the IT technician role. First, I examined the meanings they held about educational credentials to determine which were commonly held across types of credentials—that is, the qualities hiring managers expected to find in both associate and bachelor's degree holders. Then, I examined the meanings that were unique to each educational credential and the implications for the credentials' specific meaning. This examination of similar and dissimilar meanings with these two credentials helped to construct an overarching idea of what these credentials mean to hiring managers. I reviewed these meanings through the lens of institutional theory to provide insight on whether hiring managers view these as socialized qualities

(either cognitive or noncognitive) or as qualities resulting from the institutionalized effects of education. Next, I examined the overlap in the qualities expected among educational credential holders and the qualities desired in IT technicians. This analysis sought to provide insight on the extent to which each credential is linked to this occupational role.

Common Ideas about Associate and Bachelor's Degrees

Overall, the qualities hiring managers expected to find among holders of educational credentials had a relatively high amount of overlap. Table 4.1 summarizes the specific qualities hiring managers stated they expected to find in associate and bachelor's degree holders; this table also summarizes the qualities hiring managers reported they sought in technicians, which I discuss later in this chapter. Common cognitive qualities mentioned about both credentials included: the ability to learn, business knowledge, organizational skills, technical skills and knowledge, and thinking skills. Common non-cognitive qualities mentioned about both credentials included: commitment to career, communication skills, discipline, fit within the organization, maturity, motivation, and well-roundedness. Institutional qualities were not shared in common across the two degrees supporting the notion that these qualities emerge from the distinct social role associated with each credential.

Table 4.1: Qualities Expected in Credential Holders and Sought in IT Technicians

Qualities	Description	AA Holders	BA Holders	IT Techn.
Cognitive				
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

Qualities	Description	AA Holders	BA Holders	IT Techn.
Hands-On Skill	Hands-on, practical knowledge of IT; ability to do specific tasks in an applied setting.	X		X
Jack of all trades	Possesses a range of skills; ability to take on different roles			X
Organizational Skills	Ability to organize	X	X	
Technical Skills and Knowledge	Specific knowledge of IT, including the latest technology and systems; ability to handle specific technical tasks	X	X	X
Thinking Skills, Problem Solving	Ability to logically think and solve problems; troubleshooting including analytic thinking, critical thinking.	X	X	X
Non-cognitive				
Accountability	Takes responsibility for work results			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
Confidence and Leadership	Belief in one's abilities and ability to lead and manage others.	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, Completed Something	Shows person completed an achievement; shows hard work and follow through.	X	X	
Fit in Organizational Culture	When education helps fit into the organization and relate to others in organization and vice versa.	X	X	
Follow Directions	Follows procedures to complete tasks.		X	X
Loyalty	Wants to stay with employer for long term			X
Maturity	Knowledge gained from experience and age	X	X	

Qualities	Description	AA Holders	BA Holders	IT Techn.
Motivation	Ambition and drive; ability to seek out challenges and work independently.	X	X	X
Personal interest in technology	Genuinely interested in IT and spends personal time keeping up with technology.			X
Teamwork, ability to work with others	Ability to work with a team, fit in an IT department and act as a team player.			X
Well Roundedness	Knowledgeable in many subject areas, not overly focused.	X	X	
Institutional				
Eager to Prove Self	A desire to show one's ability at work; willingness to work without a sense of entitlement; "hungry."	X		
Entitlement	Attitude of being owed something or deserving a certain job or a certain salary.		X	na
Stigma; Lack of Ability, Skill or Initiative	Deficient in positive qualities, like ability, initiative or skill; needs supervision.	X		na
Overqualified	Too much education for the job; will not be happy in the job.		X	na
Other				
Lack of Resources	Got degree because they are lacking financial resources.	X		na
A good start… but not enough	Need to continue to get bachelor's degree	X		na
No difference from BA	AA does not lead to different qualities than BA	X		na
Meaning is not clear	Don't know about the meaning or cannot infer meaning	X	X	na

Source: Interviews with hiring managers.
na=not applicable

Among the common qualities hiring managers in both Seattle and Detroit

expected in both associate and bachelor's degree holders, a closer examination of their

frequency reveals insight on the labor market variation as well as the relative importance

of each quality. Table 4.2 summarizes the frequency in which hiring managers in each

labor market stated they expected to find different qualities in each type of credential

holder; it also summarizes the frequency with which they sought different qualities in IT

technicians, which I discuss later in this chapter. To examine labor market context, I

determined that hiring managers mentioned a quality at a similar rate if there was a

difference of less than 15 percent across the two labor markets. Among those that were

similar, I determined a quality to be important if approximately 20 percent of hiring

managers reported it was a quality they expected in credential holders. Among cognitive

and noncognitive qualities potentially gained through socialization, those mentioned most

often for both credentials across both labor markets were the ability to learn, thinking

skills, communication skills, and discipline or the ability to complete something.

Table 4.2: Qualities Expected in Credential Holders and Sought in IT Technicians, By Labor Market

Qualities (%)	Expected in AA Holder		Expected in BA Holder		Sought in Technicians	
	D	S	D	S	D	S
Cognitive						
Ability to learn	26	19	17	17	49	19
Business knowledge	8	3	3	11	14	31
Hands on skill	13	11	0	0	8	11
Jack of all trades, range of skills	--	--	--	--	16	6
Organizational skills	0	3	3	6	--	--
Technical skill & knowledge	53	57	28	31	62	69
Thinking skills, problem solving	24	22	25	31	24	47
Non-cognitive						
Accountability	--	--	--	--	11	0
Commitment to career	42	11	28	14	--	--
Communication skills	21	16	19	29	54	36
Discipline, completed something	34	30	42	40	--	--
Confidence & leadership	0	0	3	9	--	--
Customer service, able to work with users	--	--	--	--	46	61
Fit within organizational culture	3	0	3	6	--	--
Follows directions/procedures	5	3	6	0	11	14

Maturity	24	11	0	6	--	--
Loyalty	--	--	--	--	8	17
Motivation	13	8	6		22	6
Personal interest in technology	--	--	--	--	24	19
Teamwork, ability to work with others	--	--	--	--	32	25
Well-rounded	5	14	11	3	--	--
Institutional						
Eager to prove self	5	14	0	0	--	--
Entitlement	0	0	11	6	na	na
Overqualified	0	0	8	9	na	na
Stigma; Lack of ability, initiative, or skill	26	46	0	0	na	na
Other						
Lack of financial resources	11	19	0	0	na	na
Meaning is not clear	18	14	3	3	na	na
AA no different from BA	8	14	na	na	na	na
A good start...need to continue to Bachelor's degree	29	19	na	na	na	na
Missing (N)	0	4	2	6	1	1
Total (N)	38	41	38	41	38	41

Source: Interviews with hiring managers.
na=not applicable; D=Detroit and S=Seattle; AA=associate degree and BA=bachelor's degree

Among cognitive qualities, hiring managers in both labor markets expected both associate and bachelor's degree holders to have the ability to learn. That is, they expected degree holders to be able to acquire new knowledge and skills once on the job. For example, one hiring manager in Detroit stated: "Anybody who's committed to a couple of years of serious education I think should have a way of showing you that they can learn at a more accelerated pace." Another hiring manager from Seattle stated the idea quite simply: "it shows to us that they want to continually learn, and they would be a good asset to the group." Hiring managers thought education represented not just knowledge learned while in school but a more general ability developed by going through school.

In this way, hiring managers in both labor markets also expected both degree holders to have thinking and problem solving skills. That is, they expected degree holders to be able to use their knowledge to figure out problems and challenges that arise in the context of their work. When describing the qualities expected in an associate degree holder compared to someone without a degree, one Detroit hiring manager stated: "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 it entails and I think they're better able to dissect, analyze, problem solve, because they are better equipped with really 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. (Detroit, small)

When speaking about both associate and bachelor's degree holders, one Detroit hiring manager stated: "The more you learn, the more open-minded you become. You become a little better at analyzing things..." (Detroit, public) 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." (Seattle, large) Another stated the associate degree would indicate that someone has "an ability to do some basic problem solving" (Seattle, large). Regarding bachelor's degrees, 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. (Seattle, small)

These hiring managers all commonly echoed the idea that education is associated with greater general thinking skills. These sentiments lend support to the ideas of human

capital perspectives: that education is associated with greater skill that is associated with higher productivity at work.

Hiring managers were also less likely to report they expected technical skills and knowledge in bachelor's degree holders (28% in Detroit and 31% in Seattle) than associate degree holders (53% in Detroit and 57% in Seattle). This difference in views of the degree further supports the idea that the associate degree is a credential to prepare people for work. As one hiring manager in Seattle stated, "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." Similarly, a Detroit hiring manager reported the advantage of hiring persons 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."

In addition to these cognitive qualities, hiring managers in both labor markets expected both associate and bachelor's degree holders to have communication skills. These may include a range of qualities, including both speaking and writing skills, but pertain to the ability to convey information effectively in the workplace. Some hiring managers spoke broadly about education as an indicator that an individual has communication skills. As one Seattle hiring manager stated, "I would expect the same thing from an associate's or a bachelor's. I expect them to be able to communicate easily with me." (Seattle, IT support) Another Seattle hiring manager said one of the skills he looks for in technicians is:

> the ability to write, to speak through writing, even if that's just an e-mail. It's mind boggling bad, the communication skills of a lot of people, and

> typically if people have gone through college, those are somewhat better. Technicians without a formal education tend to not communicate well. (Seattle, large)

Expressing a similar sentiment, a Detroit hiring manager stated the following about

bachelor's degree holders:

> They're great communicators. They've had to go through writing, and doing all those 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. (Detroit, IT support)

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." (Detroit, small) The interviews illustrate 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. Communication skills may be viewed as

a non-cognitive skill that can be viewed from the perspective of conflict theory as a

cultural marker employers seek. While it may relate to effective performance at work, it

is also associated with class-based understandings about proper English and workplace

etiquette.

The other common noncognitive quality hiring managers in both labor markets

reported they expected in both associate and bachelor's degree holders was discipline or

the ability to complete something. 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." (Detroit, IT support) Another Detroit hiring manager stated: "[It]

demonstrates that you can set a goal and work toward it and achieve it." (Detroit, public)

Similarly, a Seattle hiring manager stated: "having a BA definitely proves you were able to follow something through to completion." (Seattle, public)

Hiring managers also shared similar sentiments about associate degree holders. For example, Detroit hiring managers stated the following: "I like anybody who finishes something they started." (Detroit, temp) and "I think the positives are that someone started something, and they completed it. It gives them a good start into a higher education." (Detroit, small) 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." (Seattle, large) 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. (Seattle, small)

Clearly, among some hiring managers in both labor markets the act of attending school and completing a degree indicates the individual possess an important personal quality they think is positive and valuable. Viewed from a theoretical perspective, this non-cognitive quality may indicate a sense of compliance that conflict theory would predict employers seek in workers. Alternatively, human capital theory would interpret this quality as a habit that enhances a person's ability to apply their technical skill.

These five qualities—ability to learn, thinking skills, technical skills, communication skills, and discipline—provide an indication of the general qualities hiring managers expect to find in degree holders. Hiring managers reported these expected qualities with relative frequency and without large differences across the labor

markets. Apart from whether these individual qualities correspond to broad theoretical

perspectives of human capital or conflict theory, taken together they form the basis of a

common understanding of the meaning of educational credentials. These qualities appear

to be commonly held meanings of educational credentials that are, in fact, broadly

institutionalized notions about the effect of education on individuals in terms of the

expected qualities credentials holders will have and that would be expected to be gained

through the process of schooling or socialization.

This range of qualities expected in credential holders could provide support for

several theoretical perspectives, including both human capital perspectives and conflict

perspectives. It is not clear from this overarching list of qualities that a single perspective

is clearly reflected in the reports from hiring managers. Given this wide range of

meanings, it is not surprising that theoretical perspectives have been confusing and

conflicting given the complexity of making sense of what credentials actually mean and

the possibility of multiple meanings associated with any particular quality. Beyond these

debates about these qualities associated with education, further examination of the

qualities hiring managers reported they expected in credential holders provides additional

insight on the meaning of credentials from an institutional perspective.

Unique Ideas about Associate and Bachelor's Degrees

In contrast to the common cognitive and noncognitive qualities hiring managers

expected in credential holders, some qualities were uniquely associated or mentioned

much more frequently with one credential than the other. These qualities provide an

indication of the qualities that differentiate associate degrees from bachelor's degrees and

provide an indication of the unique social role associated with each credential. The

unique qualities mentioned with each credential indicate characteristics beyond the general qualities hiring managers expect from education. Notably, all the negative qualities hiring managers associated with educational credentials were uniquely associated with either the associate or bachelor's degrees. A more detailed examination of these unique qualities, both positive and negative, provides insight on the specific meanings hiring managers attributed to these two credentials and the implications of these meanings from a theoretical standpoint.

Among the positive qualities uniquely mentioned in relationship to associate degrees was the presence of hands-on skills. 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 parts of the job. So I know they're capable of coming in and contributing immediately. (Seattle, large)

This hiring manager attributed the hands-on skill to experiences gained from schooling, in this case, to "lab work" or hands-on 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 do not have the same expectations of bachelor's degree holders and in some cases explicitly stated this difference in their expectations.

> 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. (Seattle, temp)

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 [for] 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 4-years bachelor's, in different ways.
> (Detroit, IT support)

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. Hiring managers' belief in the presence of hands-

on skill supports the notion that associate degrees have some meaning consistent with the

goal of technical preparation for work, which may arise from ideas associated with the

community college charter, as will be discussed further later in this chapter.

In addition to this cognitive quality hiring managers viewed as unique to associate

degrees, they reported several institutional qualities as unique to associate degrees and to

bachelor's degrees. These qualities that emerge from the institutional effects of education

include: eager to prove self, entitlement, lack of ability, skill or initiative, and

overqualified. They reflect employers' perceptions of degree holders' attitude that result

from their perception of the value of their degree and its corresponding social role.

Another key distinction between the associate degree and bachelor's degree

emerged with degree holders' attitudes towards work, in terms of their compliance and

willingness to submit to workplace expectations. These qualities appear to exist in

relationship to each other. That is, associate degree holders realize their degrees exist in

relationship to bachelor's degree holders, and vice versa. They recognize the relative status associated with their credential and the power or disadvantage this status brings with it. Among associate degree holders, a unique quality hiring managers expected to find was an eagerness to prove themselves. One hiring manager clearly stated about associate degree holders:

> I feel like they're more hungry, you know what I mean? They know they're coming out of community college. They're really smart and can get what it is that 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. Where other people who are already coming with a background or coming with a, MIT or wherever, they don't feel like they have to really prove themselves, you know what I mean? (Seattle, small)

As this quote indicates, some hiring managers recognized that associate degree holders are more eager to prove their abilities in the workplace because they are aware they are at a disadvantage compared to bachelor's degree holders, particularly those from more elite schools. This hiring manager, in particular, indicated community college graduates are likely to be capable and skilled on the job, but will have concerns about their status in the workplace and will have to "prove themselves" because they know they are lacking due to their education.

Further illuminating this dynamic, some hiring managers shared concerns about attitudes towards work held among bachelor's degree holders. In contrast to hiring managers' reports of associate degree holders as eager to prove themselves, they reported bachelor's degree holders have an attitude of entitlement. One hiring manager stated this expected quality in bachelor's degree holders very directly: "I can say that the individuals I'm seeing coming directly out of a four year school have a very large entitlement issue."

(Seattle, small) Another hiring manager further explained how an attitude of entitlement emerges as a dynamic among bachelor's degree graduates in the workplace.

> The four year grad feels like they paid their dues somehow by going through this four year institution and that somehow they've proved something already and so now, Mr. Employer, employ me because I know I'm great, and oh, by the way, I've got this piece of paper that says I'm great as well, okay? So that attitude is a little different. (Seattle, small)

Like the previous hiring manager who described associate degree graduates as very eager to prove themselves because of their lower status degree despite their skills, this hiring manager described the attitude of entitlement among bachelor's degree holders as a quality that emerges from their possession of the degree. The bachelor's degree holder does not feel the need to prove himself because the bachelor's degree is sufficient proof of his skills and abilities. Not only does the bachelor's degree holder have the attitude of knowing he is capable, but he feels his capabilities are fully validated and indisputable because of the "piece of paper," i.e., the credential.

This distinction between associate and bachelor's degree holders gets at a fundamental difference in attitudes between the degree holders that highlights the potential differences in their relative status and power, which some hiring managers directly reported. This set of qualities provides support for conflict perspectives, particularly control theory, with the idea that education prepares workers to submit to certain types of workplace controls and expectations. Furthermore, the awareness of hiring managers and degree holders of the relative status of educational credentials provide some insight into the institutionalized ideas about these credentials in the minds of hiring managers.

The negative qualities hiring managers reported they expected in associate degree holders provide further insight on the differences between the credentials and their status.

Hiring managers reported they expected several negative qualities in associate degree holders, including: stigma or lack of ability, initiative, or skill. As one hiring manager stated:

> Maybe what it tells…is that a two year degree [holder] is maybe someone who may not have been as academically inclined as someone who went to four years. (Seattle, large)

In addition to the lack of skill among associate degree holders, another hiring manager suggested the associate degree might also indicate a lack of ambition or initiative, in that they just did the minimum amount required to get a job.

> Why did you only go for two years? And you just wanted 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. (Seattle, large)

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

> You don't want to take a 2-year security graduate and put him in a company where they're the only person working on [network] security. You're going to want to…I would suggest finding a place where you're working with some experienced folks so that you can grow faster, and that you don't have to just rely on your book learning in order to make that growth. (Seattle, large)

Rather than being a positive marker of skill and ability, the associate degree can be viewed as a negative marker that brings with it a sense of deficiency and stigma in the minds of some hiring managers.

Even those hiring managers who held positive views of the associate degree still recognized the stigma held by others, including both hiring managers and associate degree holders themselves. One hiring manager described the general view in society

towards the associate degree as something of lesser value when compared to 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. (Seattle,
> public)

Another hiring manager described the potential stigma that associate degree holders are

aware they might convey with their degree:

> A lot of people don't even want to tell you they've got an associate's
> degree. They'll just say they went to school. And people, it's not that they
> think less of you, they just don't think you're as advanced as a person with
> a bachelor's degree. (Detroit, IT support)

This hiring manager also conveys a sense of ambivalence about associate degrees holders.

While they are viewed as having some positive qualities, they are also viewed as lesser

than bachelor's degrees and lacking in some ways because they are not as "advanced."

That associate degree holders might want to hide their degree indicates they prefer to

leave their education unstated than disclose they have an associate degree and not a

bachelor's degree. That is, some stigma goes along with having an associate degree and

not having a bachelor's degree. In this case, the hiring managers suggested that the

potential benefits of having an associate degree are outweighed by this potential stigma.

These relatively negative views of the associate degree, as a marker of stigma and

deficiency, exist in conjunction with more positive views of the degree; however, they

provide important insight on the reservations some hiring managers may have about

associate degree holders, as well as the reasons why these degree holders have a relative

lack of status. Although hiring managers associate some negative traits with bachelor's

degree holders, they are fewer than the negative traits ascribed to the associate degree and

are not linked to deficiencies in skills and ability, but rather to the attitudes that bachelor's degree holders bring to the workplace.

That credentials may hold a stigma is an issue not typically addressed in prior theoretical perspectives on educational credentials. These perspectives typically address the more positive qualities associated with credentials, whether these qualities are greater skill and productivity (as posited by human capital and related theories), or greater power and status (as posited by conflict theories). However, this comparison of associate and bachelor's degrees uncovers the relative difference in status between these degrees; these credentials do not have independent meaning but rather gain their meaning from each other. The potentially negative status of the associate degree raises an important issue about credential attainment. That is, this finding raises questions about the common wisdom that completing credentials is important for employment. Perhaps, some students, aware of this stigma, decide to bypass the associate degree in the pursuit of the bachelor's degree.

Labor Market Specific Ideas about Degrees

In addition to qualities that were uniquely attributed to one of the credentials, some notable differences in the qualities expected in associate degree holders and bachelor's degree holders exist across labor markets. The degrees corresponded to different ideas about their holders based in the local labor market context. Detroit hiring managers are more likely than Seattle hiring managers to indicate an associate degree signifies the positive social quality of commitment to career (42% versus 11%). One Detroit hiring manager stated: "It shows the interest in whatever area it is that they're pursuing" (Detroit, IT support) Another Detroit hiring manager 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 someone who has not pursued their education at all. (Detroit, public)

Another Detroit hiring manager described the associate degree within the framework of people making career changes: "So it gets them into the IT career field from a transition—something that they weren't in previously" (Detroit, temp) Given the higher amount of industrial change occurring in Detroit due to the decline of the automotive industry, more displaced workers are in the labor market looking for new careers, including IT. In this context with a high number of career changes, hiring managers may be more sensitive to verifying workers' demonstrated commitment to the field of IT. By obtaining an associate degree, workers are able to show they have made an investment in an IT career and are serious about their work.

In contrast, Seattle hiring managers did not share this same concern. Rather, they were more likely than Detroit hiring managers to indicate an associate degree signifies a lack of ability, initiative, or skill (32% versus 21%). As described earlier in this section, the lack of ability, initiative, or skill indicates that hiring managers view associate degree holders negatively with a sense of stigma. The particular labor market composition in Seattle with a relatively high number of bachelor's degree holders might account for the somewhat greater stigma associated with associate degrees (46% in Seattle versus 26% in Detroit). Hiring managers expected to find associate degree holders to be lacking in qualities they would like to find in workers. Despite their generally favorable views of educational credentials, hiring managers in Seattle held a negative view of associate degree holders more specifically.

These differences across the Detroit and Seattle labor markets are particularly notable because they illustrate a potentially fundamental difference in how hiring managers view the associate degree across these two labor markets. While hiring managers agree the associate degree provides technical skill and knowledge more than any other quality, the associate degree is more indicative of a valued interpersonal quality (commitment to career) in Detroit and more indicative of a stigmatized quality (lack of ability, initiative, or skill) in Seattle. This difference in meaning may be rooted in differences in each labor market in terms of how education is viewed, supporting the notion that local labor markets have particular social practices that reflect their own situations and realities.

In Detroit, the associate degree has a unique meaning as a signifier of commitment to a career in an otherwise turbulent and changing economic climate. In contrast, the associate degree has a unique meaning as a signifier of a deficiency in Seattle, given the higher education levels of its technology dominated economy. These differences in meanings attributed to the educational credentials in each labor market result from the frames of reference regarding education held among hiring managers in each labor market. In Seattle, with its higher average education level, hiring managers might evaluate the associate degree in reference to the more dominantly held bachelor's degree whereas hiring managers in Detroit might instead evaluate it in reference to the attainment of some college, a more common level of education in the labor market.

Overall, hiring managers' views of the credentials are mixed, as they expect both positive and negative qualities in their holders. On the one hand, they view the associate degree as a more technical degree than the bachelor's degree but they view the associate

degree as a more stigmatized degree. On the other hand, they view the bachelor's degree as a marker of higher status but a degree whose holders will have high and potentially problematic expectations for their role at work. However, the extent of these meanings varies depending on the labor market context. In Detroit, hiring managers view the associate degree as an indication of one's commitment to career, while in Seattle hiring managers view this degree as an indication of lack of ability. These differential meanings suggest the local labor market context including economic conditions and average education levels may influence the meanings hiring managers attribute to credentials. In the next section, I discuss the link between these qualities expected in credential holders and the qualities sought in IT technicians.

Ideas about Degrees Relative to Occupational Positions

Beyond the qualities hiring managers attributed to these educational credentials is the match between these qualities and the qualities hiring managers sought in workers. I examine the extent to which associate degrees or bachelor's degrees are linked to IT technician roles by examining the overlap in the qualities expected in these credential holders and the qualities sought for these workers. Through this examination I seek to explore the meaning of these degrees from the perspective of institutional theory. Meyer's theory of education as an institution suggests that educational credentials have meaning relative to social roles, regardless of the actual qualities attained through the educational process. Rather, the key issue is how the credential is viewed in society, particularly by those with the power to hire. The meaning of an educational credential ought to be associated with the specific social role or occupation it was designed for. That is, if meaning is institutionalized, then the qualities sought in the workers would be linked

with the qualities expected among credential holders. From this perspective, I assessed

the extent to which hiring managers view associate degrees and bachelor's degree holders

as having relevant qualities for IT technician jobs.

To better understand how the qualities hiring managers expect in credential

holders match with the qualities they seek in IT technicians, I first examine the frequency

with which hiring managers mentioned they sought these qualities in technicians across

the two labor markets. Table 4.2 (presented earlier in this chapter) summarizes the

qualities hiring managers sought in IT technicians in the two labor markets and also

compares these qualities with those expected in credential holders in the two labor

markets.

Among cognitive qualities sought in IT technicians, technical skill and knowledge

is most common in both labor markets. Close to two thirds of hiring managers in both

labor markets reported they sought technical skill and knowledge in IT technicians (62

percent and 69 percent in Detroit and Seattle, respectively). One Detroit hiring manager

stated: "They have to have certain knowledge of the systems, whatever we're hiring for:

Windows, Vista, or XP, and the server…" (Detroit, small) Similarly, a Seattle hiring

manager stated:

> Definitely our number one thing is they've got to have knowledge in the
> whole Microsoft… we're a Microsoft company. So they need to have the
> whole Windows…and we're very good about updating and moving up.
> (Seattle, small)

Other hiring managers from both Detroit and Seattle expressed a desire for general

technical skills stating: "In IT, you have to have a certain level of technical knowledge,

but we'll train you on the rest of it" (Detroit, small), and "[they] definitely need to have

computer knowledge. When we first hire the person, they need to know computers. They

basically have to be handy" (Seattle, small). Clearly, hiring managers are looking for a certain base set of skills and knowledge in a worker to be able to do the job as an IT technician.

Among non-cognitive qualities, important specific qualities include communication skills, customer service, and teamwork. Hiring managers report these qualities are particularly important to find in IT technicians, especially in conjunction with the technical skills. One Detroit hiring manager clearly stated this preference: "Obviously [it's] important for them to have the skill set, but more important than anything was their ability to communicate–that was huge." (Detroit, small) In terms of communication skills, hiring managers typically sought workers with both speaking and writing skills. One Detroit hiring manager emphasized the particular importance of writing abilities:

> What I look for is someone who's got a good communication skill set, because this is regardless, really, of anybody I hire: Can they communicate? Can they write a cohesive—I actually ask for writing samples–can they write a cohesive email? (Detroit, large)

In addition to communication skills pertaining to speaking and writing, some hiring managers emphasized the importance of customer service skills or the ability to work with users. One Detroit hiring manager stated this sentiment as follows:

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

This quote illustrates not only the importance of communication but also the ability to understand the needs of the persons who use the IT in the organization. Hiring managers also reported they sought workers who knew how to work well in teams. As one Detroit hiring manager stated: "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." (Detroit, large) Similarly, a Seattle hiring

manager asked: "do they embrace the idea of teamwork?" (Seattle, small) 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 clearly a quality that they would expect to find in

degree holders.

Beyond these common qualities, hiring managers in the two labor markets

differed on some specific qualities they sought in technicians: Detroit hiring managers

mentioned more often than Seattle hiring managers they sought technicians with the

ability to learn and change (49% versus 19%). This quality relates to the workers' ability

to acquire new knowledge and skills. As one Detroit hiring manager stated when asked

about the qualities sought in a technician: "I guess just someone who takes pride in their

work and who wants to continuously improve. Not someone who's stagnant. (Detroit,

small) Another Detroit hiring manager stated: "A lot of it is about wearing a lot of

different hats, so it's that eagerness to learn and to grow and to constantly take on more

responsibilities." (Detroit, large) This quote highlights the need for the ability to learn as

a means of growing in the organization and taking on a range of tasks. This quality may

be particularly important in the tight economic context of Detroit, where organizations

are attempting to do more work with less staff and to adapt to changes over time. This

focus on change is a reflection of the changing industrial climate of the Detroit economy

more generally.

In contrast to Detroit hiring managers, Seattle hiring managers mentioned more

often that they sought technicians with thinking skills (47% versus 24%). Thinking skills

relate to their ability to follow a logical pattern of thought when solving a problem or

troubleshooting. One Seattle hiring manager clearly stated: "It's about the way people think, it's troubleshooting." (Seattle, IT support) Another Seattle hiring manager expanded on this particular quality stating: "You've got to be able to handle calls, you got to be able to appropriately troubleshoot, and think with a logical thought process and understand the big picture of how things work." (Seattle, large) Though related to technical skills, thinking skills are more abstract and less specific than the qualities hiring managers typically referred to when describing technical skills. That hiring managers reported they sought thinking skills more often in Seattle is consistent with their concern associate degree holders may not have the ability or skills they seek. They may perceive this deficiency in associate degree holders because of their relatively high expectations for workers in this occupational role.

To assess the meaning of educational credentials in their occupational context, I compared the qualities associated with the IT technician role with the qualities associated with educational credentials. For this comparison I assessed whether there was overlap in these two sets of qualities as listed in Table 4.1. In making this comparison, I sought to examine how closely related the qualities sought for the ideal technician role were to the qualities expected in particular educational credentials. From the hiring managers' reports emerged a similar image of the ideal qualities sought for the IT technician role: technical skills, ability to learn, thinking skills, communication skills, customer service skills, and teamwork ability. Several of these qualities were also qualities hiring managers expected to find in credential holders, particularly technical skills, ability to learn, thinking skills, and communication skills. In this way, educational credentials provide a broad indication of some of the key qualities hiring managers sought in IT technicians.

Despite this overlap, some important differences emerged between the qualities hiring managers attributed to educational credential holders and the qualities they sought in IT technicians. Hiring managers mentioned several qualities they sought in technicians that they did not expect to find in credential holders. Among cognitive qualities, these included being a jack-of-all-trades or having a range of skills, or as one hiring manager stated someone who "can do everything." Among non-cognitive qualities, these included the following: accountability; customer service or ability to work with users; loyalty; personal interest in technology; and teamwork and ability to work with others. These are of particular importance because they indicate qualities in which there is not a good match between the educational credential and the occupation. In particular, hiring managers sought more non-cognitive skills among workers that they did not attribute to credential holders. Among these qualities, customer service and teamwork were particularly important reflecting the emphasis on interpersonal skills and the idea that hiring managers did not commonly expect these qualities in credential holders. A personal interest in technology was also a particularly important quality. To identify the qualities they seek in workers that they do not associate with credentials, hiring managers are likely to assess these qualities through indicators other than educational credentials. Thus, educational credentials do not have an exclusive allocative role in matching individuals to jobs.

At the same time, hiring managers expected to find several qualities in degree holders they did not mention as qualities they sought in technicians. These qualities included: commitment to career; completed something or discipline; confidence or leadership; eagerness to prove self; fit within organization culture; maturity; and well-

roundedness. Interestingly, these qualities were all non-cognitive qualities. Thus, hiring managers thought credential holders possessed these non-cognitive qualities that they did not also seek in potential workers. From this examination, it appears that there is a mismatch between the non-cognitive qualities hiring managers sought in IT technicians and those they expected to find in credential holders.

In a broad sense, the meanings of these credentials and this occupation overlapped in a meaningful way, but there were limits to the information hiring managers could gain from credentials, particularly for noncognitive qualities. While hiring managers recognize that important qualities can be expected in credential holders, they do not believe that credentials identify all the key qualities they sought in workers for these roles. Across both labor markets, hiring managers were more likely to seek qualities in IT technicians than to expect to find these qualities in credential holders, including both associate and bachelor's degree holders. Hiring managers reported they sought certain qualities they did not expect to find in credential holders, such as customer service skills and teamwork ability. Consequently, they sought to identify potential workers with these qualities through other means than their educational credentials. For example, they may seek to gauge these qualities by other means 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 is consistent with Bills' (1990) observation that employers use job history data as a key source of information in making hiring decisions.

Work experience, then, may be another important way hiring managers assess the qualities they are seeking in potential workers. Since this study sought to focus on entry-

level positions, these roles typically did not require a lot of prior work experience.

However, hiring managers still might have sought workers with at least some prior

relevant work experience. From this perspective, educational credentials would be only a

partial indicator of the qualities hiring managers seek in workers for the occupational role

of the IT technician.

In addition to this examination of the match between the qualities sought in IT

technicians and the qualities expected in credential holders, the interviews yielded

information about the overall roles hiring managers expected credential holders to be

well-suited for. In many interviews, I asked hiring managers about which roles in their

organization they thought were most appropriate for associate degree holders and

bachelor's degree holders. Also, when discussing how they viewed credentials in the

hiring process, hiring managers sometimes mentioned their views on whether the

credential was appropriate for the role. These data provide more insight on the

distinctions between associate and bachelor's degree holders in relationship to

occupational roles. They provide some indication of the extent to which these credentials

are institutionalized for IT technician positions.

Several hiring managers indicated that bachelor's degrees were not the most

appropriate degree for IT technician positions. In some cases, hiring managers viewed

bachelor's degrees as too much education for IT technician jobs. As one Seattle hiring

manager stated:

> And the 4-year degrees, I don't think, that's almost, for me it's a red flag,
> too much education, because we're not writing software here, we're fixing
> problems and helping other people, and installing stuff and configuring it.
> And it's generic stuff at the end of the day as far as our IT operations.
> (Seattle, small)

The concern that the bachelor's degree is too much education is related to the concern

that workers might not be happy with the job and would leave for another position. As

another Seattle hiring manager stated:

> People walk in with four year degrees or more, I've seen more, sometimes
> I wonder why they're applying for the job, they're overqualified. And I
> don't think they'll be happy here. I don't have a job I can keep them
> happy with long term. They're better than the job I'm hiring for. They're
> not going to be happy. (Seattle, small)

Another Seattle hiring manager illustrated a similar belief among bachelor's degree

holders about the roles that are appropriate for them to hold in IT.

> When I was recruiting, there were certain positions…standard test
> positions where they were looking for scripting knowledge.[9] So we'd
> need someone who could script a batch file to run these tests. Very basic
> coding. At that point, I'd go to a community college, because it's very
> difficult to convince a computer science grad that [he] should take four
> years and for his job, he should run scripts. So I would go to community
> college for those. The networking types of positions, tech support, they
> were great for that. (Seattle, temp)

The idea that bachelor's degree holders are overqualified for or would be bored in IT

technician positions supports the idea that occupations are associated with certain

credentials, and these associations are established in the minds of hiring managers and in

their predictions of their workers' behavior. They anticipated bachelor's degree holders

would recognize they are overqualified for the job and would eventually leave. They did

not want to hire a worker who would be unhappy with the job and not stay very long,

incurring the cost of additional recruitment as a result of turnover.

While some hiring managers stated bachelor's degree holders were overqualified

for the IT technician position, when they spoke of positions that were appropriate for

bachelor's degree holders, they commonly mentioned positions with management

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[9] Scripting refers to programming used to control software applications.

potential. These roles were not mentioned in conjunction with associate degree holders.

Some hiring managers in both labor markets mentioned this distinction between

bachelor's degree holders as appropriate for management roles and associate degrees

holders as not as appropriate. One Detroit hiring manager stated the following about the

hiring process for a management role:

> I don't want to stereotype, I don't want to say–the reality is if they had a
> bachelor's degree, and I had a management position, I would probably
> look at the bachelor's degree [holder] first, in reality. If it were apples to
> apples in terms of experience, I would. I would gravitate to the
> bachelor's. (Detroit, small)

Likewise, a hiring manager from Seattle echoed a similar sentiment:

> The only sort of requirement that we have in terms of education is that
> you have a four year degree to be able to get into a higher level position.
> The rest of it, and IT, moving forward, we'd like for everyone to have a
> four year degree. But it's not going to be a requirement for the help desk
> position, because it's not for a management role. (Seattle, small)

In this case, the hiring manager felt that bachelor's degree holders were more appropriate

for higher positions, particularly management positions, and associate degrees were not

appropriate for these roles. This sentiment is consistent with arguments from conflict

theory perspective that argue that credentials provide power and status to those who hold

them. It also provides insight into the kinds of roles that are connected to these

credentials. Since the IT technician role, particularly the entry-level position, is clearly

not a management position, the associate degree may, in fact, be a good match for this

role.

In contrast to the link between bachelor's degrees as appropriate for management

roles, hiring managers commonly reported associate degree holders were most

appropriate for entry-level and technician roles. When asked what roles are appropriate

for associate degree holders, a Detroit hiring manager clearly responded: "I would say

certainly the entry-level tech support." (Detroit, temp) Similarly, another Detroit hiring

manager stated: "Anything that we classify as a technician, if you have an associate's

degree you at least have the knowledge base to be able to jump in." (Detroit, large)

Another Detroit hiring manager further illustrated some of the roles in IT for associate

degree holders:

> Whereas a four-year degree might emphasize more of a high-level systems
> management, community colleges should set their target lower to a desk
> top management or network management, not the bigger picture. (Seattle,
> large)

A Seattle hiring manager voiced a similar sentiment about the appropriate role for

associate degree holders:

> A lot of those entry-level jobs, be they programming jobs or help desk
> jobs or system management jobs, those are the appropriate jobs that I feel
> match someone coming in from the community college. (Seattle, large)

Based on hiring managers' comments, many view the associate degree as a more

appropriate credential for technician roles than the bachelor's degree. When viewed in

terms of occupational roles and educational credentials, hiring managers hold

impressions about which roles are most appropriate to which credential holders. These

impressions supply further evidence on the difference between bachelor's degrees and

associate degrees in how hiring managers viewed them as matched for the IT technician

role.

This observation points to a shared understanding among hiring managers and

workers about the appropriate roles for particular credential holders. When considered in

reference to a particular occupation, a credential might take on a positive or negative

meaning. In the case of the bachelor's degree and the IT technician position, the

credential may have a negative meaning when hiring managers believe it is not meant for

that occupational role. Rather than have a constant meaning as suggested by both human capital and conflict perspectives, an educational credential may actually have a more relative meaning that changes depending on the occupation with relative to which it is being considered.

These observations on the appropriate roles for associate degree and bachelor's degree holders, combined with the idea that associate degree holders have greater technical skills, points to the conclusion that the associate degree is somewhat more closely linked to the IT technician role than the bachelor's degree, despite its higher level of negative qualities. While neither credential is a very strong match to the technician occupation, the associate degree is a better indicator than the bachelor's degree of technical skills—a key quality sought in technicians. In this broad sense, the associate degree has a distinct meaning relative to this occupational role.

However, as the comparison between qualities sought in technicians and the qualities expected in degree holders indicates, the credential has its limits in what hiring managers expect it to signify among potential workers. That is, there are several important qualities hiring managers sought in technicians that these credentials did not provide information on. Neither credential is a good indicator of customer service, teamwork, or interest in technology—also important traits sought in technicians. So, while the associate degree is linked to the technician occupation, this link is not a perfect one. Comparing the two credentials on the specific qualities as well as the more general roles, it appears that the associate degree is more closely linked to the IT technician role than the bachelor's degree is. Overall, this provides some evidence that the associate degree is institutionalized for this occupational role.

The findings provide some evidence that the meaning of educational credentials and its link to IT technician roles varies by the labor market context. While in Detroit hiring managers attribute positive qualities to the associate degree (commitment to career), in Seattle they attribute some negative qualities to it (lack of ability). They also seek different qualities in IT technicians (like the ability to change in Detroit, and thinking skills in Seattle); these qualities generally correspond to the differences in the qualities they expected in credential holders. While hiring managers had similar qualities expected in credential holders and sought in technicians, these points of divergence might be important enough to expect some differences in how these credentials are used in hiring technicians across the two labor markets. Thus, the next issue to examine is how hiring managers use credentials in hiring across the two labor markets. This connection is conceptually different from the previous discussion in that it makes the leap from hiring managers' perceptions to their potential actions when hiring IT technicians. The next section examines the use of educational credentials in hiring of IT technicians.

Use of Degrees, By Labor Market

To illuminate the role of educational credentials in the practice of hiring IT technicians, I included questions in the interviews with hiring managers about their preferences for credentials when hiring, as well as their current technician workforce. In addition, I collected job descriptions for current IT technician positions to provide another measure of credential use in hiring. The different measures of credentials use each provided insight on a different aspect of the hiring process and allow for triangulation. The hiring managers reported preferences for credentials likely reflected a combination of their personal preferences and preferences embodied in their

organization's policies and practices. However, the distinction between these two levels (individual and organizational) is inherently ambiguous when examining hiring managers reported preferences. When referring to hiring managers' preferences, I reported these at the level of the hiring manager rather than aggregating across hiring managers and reporting preferences at the organizational level. The job descriptions and the composition of the current technician workforce were more likely to be indications of the organization's preferences for credentials, as reflected through their organizational statement of a job description or their past hiring actions as reflected in their workforce. However, depending on the organization, these actions may be shaped more or less directly by the individual hiring manager(s) rather than explicit organizational policy. Still, I reported these at the level of the organization. This section describes each of these measures of the hiring managers' and their organizations' use of educational credentials in the context of their labor market.

Despite the differences in average educational attainment in each labor market, hiring managers in both Detroit and Seattle reported similar preferences for educational credentials when hiring. Table 4.3 details hiring managers' preferences by education level, including bachelor's degree, associate degree, some college, and none; their preferences included all the educational credentials they reported they preferred. The majority of hiring managers in both labor markets reported similar preferences: when hiring IT technicians, they would prefer a bachelor's degree, associate degree, or some college—very few reported they had no preference for higher education (14% and 20%, Detroit and Seattle, respectively).

Table 4.3: Education Preferred by Hiring Managers, By Labor Market

Education	Detroit	Seattle
Bachelor's (%)	54	60
Associate (%)	40	48
Some College (%)	6	3
None (%)	14	20
Total (N)	35	40
Missing (N)	2	1

Source: Interviews with hiring managers.
Note: This table reports all education levels not just the highest mentioned by hiring managers.

Job descriptions provided a somewhat different view on preferences for educational credentials than hiring managers' reported preferences. However, the findings were generally similar across the labor markets. Table 4.4 summarizes the types of educational credentials listed on IT technician job descriptions. Hiring managers actually held stronger preferences for bachelor's degrees than was formally reflected in their job descriptions for these jobs. While hiring managers' clearly stated their preference for bachelor's degrees (54% and 60%, Detroit and Seattle, respectively), the job descriptions listed the bachelor's degree much less frequently (24% in both labor markets). The fact that employers did not list the bachelor's degree as a requirement on their job descriptions did not preclude them from preferring the credential at the point of hiring, as suggested by hiring managers' reported preferences.

This discrepancy, however, may point to potential differences in hiring practices among employers. For example, some were reluctant to list the highest credential they wanted so that their formally stated hiring requirements were not too stringent, in case they were unable to find a worker with the credential. While job descriptions in both labor markets mentioned bachelor's degrees at a similar rate, Detroit employers are more likely to list an associate degree on their job description than Seattle employers (47%

versus 33%), like the different preference for the bachelor's degree over associate

degrees. In both labor markets, this difference was just below the 15% criteria. This

difference may be further reflected in the differences reported below in the educational

level of their current IT technician workforce.

Table 4.4: Educational Credentials in Job Descriptions, By Labor Market

Education	Detroit	Seattle
Bachelor's (%)	24	24
Associate (%)	47	33
College (%)	35	29
None (%)	24	33
Total (N)	28	30
Missing (N)	11	9

Source: Interviews with hiring managers.
Note: This table reports all credentials mentioned in each organization's job descriptions.

The education level of an organization's current IT technicians provided insight

on actual practices in the past in terms of the use of educational credentials. Table 4.5

summarizes the education levels of all current IT technicians in an organization, as

reported by hiring managers in the interviews and indicates the percent of organizations

in each labor market that employ at least one technician with each type of education. In

the instances where there were multiple interviews with hiring managers within one

organization, I compared the hiring managers' reports and coded them into one record at

the organizational level.

Across both labor markets, organizations have a wide range of educational levels

among their current IT technician staff. Nearly two-thirds of the employers in both labor

markets reported at least one of their IT technicians has a bachelor's degree, and about a

third reported at least one of their IT technicians has no college education. This finding

supports the general characterization of the IT technician occupation as one with many

potential educational pathways. Despite this similarity, organizations varied in their

current workforce in terms of who held an associate degree. Hiring managers in Seattle

were more likely to report their current IT technicians have associate degrees than Detroit

(50% versus 29%, respectively). It is notable that Seattle hiring managers have more

experience with workers who hold associate degrees and at the same time also hold more

negative meanings about the skills and abilities of holders of this degree. In contrast, in

Detroit, more employers reported their IT technicians had completed some college than

in Seattle (41% versus 20%). That Detroit hiring managers have less experience with

associate degree holders but more experience with workers who have just some college

might help explain why they view the associate degree as reflecting commitment to a

career. Rather than just take some classes in an area, they view the completion of this

degree as a more meaningful marker of the qualities they seek in workers.

Table 4.5: All Current IT Technicians' Education, by Labor Market

Education	Detroit	Seattle
Bachelor's (%)	65	65
Associate (%)	29	50
Some College (%)	41	20
None (%)	35	35
Total (N)	17	20
Missing (N)	7	7
NA (N)	4	3

Source: Interviews with hiring managers.
Note: This table reports all credentials mentioned held among IT technicians in the
organization.

The examination of hiring managers' use of credentials in the hiring process

sought to examine the role of educational credentials beyond hiring managers'

perceptions into their practices. As with hiring managers' perceptions of credentials and

the degree of match with the IT technician occupational role, the examination of hiring

managers' credentials use seeks to answer the question of whether their use is similar or

different by labor market. The general similarity in preferences and in job descriptions

across the two labor markets may indicate a shared cultural value or practice about the role of education, that are potentially shaped more by their broadly held ideas about educational credentials than by the culture and practices of the local labor market. However, the differences in labor market emerge in that Detroit employers more actively seek associate degree holders by listing this credential on their job postings but end up employing technicians who hold just some college. At the same time, Seattle employers actually employ more associate degree holders but do not seek these credentialed workers as actively as Detroit employers. In this way, the more positive outlook of Detroit hiring managers towards associate degrees is reflected in the hiring practices of these employers. In contrast, hiring managers in Seattle may be settling for associate degree holders or their greater experience with these credential holders is linked to their less favorable views of them.

Preferences for credentials as stated by hiring managers and listed on job descriptions are similar by labor market and provide some indication hiring managers prefer the bachelor's degree over the associate degree. This finding is in contrast to the previously discussed finding that the associate degree is more closely linked than the bachelor's degree for IT technician positions. That hiring managers in the two labor markets share preferences also exists in contrast to the difference reported in meanings in the two labor markets, providing some indication this may be a more broadly held among employers. However, differences do exist in the labor markets, as reflected in their current technician workforce, which corresponds to the average education level in their population. Additional explanations for the variations across labor markets in the meanings hiring managers attribute to educational credentials and how they use these

credentials in hiring may be linked to their views and experiences with community colleges, as institutions of higher education that may have a role in shaping the meaning of their credentials.

Views of Community Colleges, By Labor Market

Institutional theory posits that the educational institutions that issue credentials have a role in shaping their meaning. Hiring managers' views of community colleges may reflect an institutional charter that gives the colleges authority to issue credentials and may be a possible explanation for the meanings they held about educational credentials. As such, hiring managers views and experiences with the educational institutions that issue the credentials may be related to the meaning hiring managers ascribe to educational credentials and how they use them in hiring. In this section, I examine hiring managers' meanings of educational credentials relative to their views of and experiences with community colleges. These understandings may form an institutional charter of the community college—that is, a specific role for the community college as an institution with a sense of authority in issuing particular kinds of educational credentials. The nature of hiring managers' experiences with community colleges may also differ along with their understanding of the community college as an institution.

Some large differences exist across the two labor markets in how hiring managers view community colleges. Table 4.7 summarizes hiring managers' views of community colleges. Seattle hiring managers are more likely to view community colleges as workforce-oriented than those in Detroit (78% versus 48%), as well as good for technical fields, hands-on and specific instruction, and good for retraining. One Seattle hiring

manager stated: "I think community colleges have a great role this, in that skill-enhancing piece and their certificate programs, or whatever." Another Seattle hiring manager illustrates this point further: "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." In contrast, Detroit hiring managers are somewhat more likely to view community colleges as transfer oriented (54% versus 38%) and as less expensive and affordable (46% versus 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 their gen eds done at a lower rate compared to the university." That hiring managers in Detroit reported that community colleges were both transfer-oriented and affordable provides some indication of the more dominant role they play in the context of this labor market.

These meanings emerge from the particular context for higher education in those 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 rather than higher-level thinking skills, as valued in technicians by Seattle hiring managers. 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. Rather, they viewed community colleges as workforce-oriented and potentially less likely to provide the kinds of thinking skills they are looking for. Community colleges were viewed as a good place for retraining and less as a good place for training for one's initial entry into work.

In contrast, the Detroit labor market with its relatively fewer bachelor's degree holders, community colleges were viewed as a more attractive pathway to attaining a bachelor's degree and to entering a field by demonstrating a commitment to one's career, as valued by Detroit hiring managers. Hiring managers in Detroit with its high level of industrial change view the associate degree as an indicator of this commitment to career and the community colleges as a less expensive and a good place to start one's education. These perceptions in Detroit may reflect the idea that community colleges are viewed by many hiring managers as more of an extension of the four-year university than as a lower status institution. As a result, community colleges in Detroit may be more linked to the institutional charter of the university than in Seattle. In contrast, in Seattle community colleges may have their own separate, workforce-oriented institutional charter. It is not entirely clear why Detroit hiring managers reported less frequently than Seattle hiring managers they viewed community college as workforce-oriented. Perhaps, in Detroit the difficult economic climate and the increased emphasis on college as a means to attaining a stable career path may have increased the visibility of community colleges as a means to college education since four-year colleges may be viewed as too expensive.

Table 4.6: Hiring Managers' Views of Community Colleges, By Labor Market

Views 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; prepare for 4-year college	24	18
Other		
Less rigorous, look down upon, stigmatized	27	20
Less expensive, affordable	46	28

No different from 4-year colleges	14	5
No impressions	8	0
Missing (N)	0	0
Total	38	41

Source: Interviews with hiring managers.

These views reported by hiring managers are grounded in experiences as nearly all hiring managers in both labor markets have had at least some experiences with community colleges. Less than 10% of hiring managers in both labor markets reported no experience with community colleges (see Table 4.7). The types of experiences hiring managers reported include their direct experience attending the community college or their knowledge of someone they know who attended a community college, typically a relative or employee. In addition, many have had experiences hiring and recruiting from community colleges or have had some other type of professional experience with a community college, either serving on an advisory board or participating in some type of employer-community college partnership. Many of the hiring managers have had more than one of these types of interactions, and so may have relatively good knowledge of community colleges.

Thus, the hiring managers in both labor markets had direct experiences with community colleges on which to base their views on community colleges and by extension their impressions of associate degrees. Some differences exist across the two labor markets. Hiring managers in Detroit were more likely to have known someone who attended a community college than those in Seattle (30% versus 15% respectively). Hiring managers in Detroit were slightly less likely than those in Seattle to have attended a community college themselves (32% versus 45%). Despite these differences, the finding remains that hiring managers in both labor markets have experiences with

community colleges upon which to base their perceptions of the community college as an

institution.

Table 4.7: Hiring Managers' Experiences with Community Colleges

Type of Experience (%)	Detroit	Seattle
Attended Self	32	45
Knows Someone Who Attended	30	15
Professional Experience (i.e. advisory board or employer-community college partnership)	35	48
Hiring and recruiting	46	38
None	8	5
Missing (N)	1	1
Total (N)	38	41

Source: Interviews with hiring managers.

Organizational Context

In addition to labor markets, organizations are an important part of the social

structure that may influence the role of educational credentials in the hiring process.

Since the hiring process for new workers occurs within the context of organizations, they

provide a particularly important location for understanding credentials. To examine the

role of organizational context, I first examined potential influences on the use of

credentials across the major organizational types in this study to determine if they did

indeed vary as expected. The organizational types include: small private sector, large

private sector, public sector, IT support, and temporary placement. I then examined the

use of credentials by hiring managers across these organization types. Finally I examined

the ideas that hiring managers held about credentials and about community colleges, as

reflecting potential aspects of the organizational climate towards educational credentials.

Organizational Influences on the Use of Credentials

I examined two potential influences within organizations on their use of

credentials: degree of bureaucracy and advancement opportunities. I coded these

characteristics at the organizational level. In the case of multiple interviews at the same organization, I used the interviews to determine the degree of bureaucracy in the hiring practices of the organization and the nature of advancement opportunities for IT technicians. This section describes each of these issues and examines their potential relationship to the organizational use of credentials when hiring.

The level of bureaucracy in an organization might be associated with the level of importance placed by the organization on education; in more bureaucratic organizations, education might be emphasized more (Bridges and Villemez 1991; Cohen and Pfeffer 1986). Drawing from institutional theory, bureaucracy is likely associated with the organization types, i.e., large private sector and public sector organizations have more bureaucracy than other organizations. For the purposes of this analysis, the degree of bureaucracy within organizations is examined through such realms as the degree of formality in the search process, the role of human resources in hiring, and the degree of structure in the promotion process. Specific examples of these various manifestations of bureaucracy in organizations emerged from the interviews. These included the following: a specified role for human resources such as screening candidates up front or involvement in decision making; formal hiring process requirements such as a standard list of interview questions, a requirement to post job opening, an awareness of regulations, i.e. EEO or a clear order for the hiring process; a clearly defined path and process for promotion.

To code organizations as bureaucratic in their employment, I created a summary measure that codes an organization as bureaucratic if it has at least one manifestation of bureaucracy, as described in Table 4.8. As this table indicates, large and public

organizations are more bureaucratic, consistent with their greater emphasis on credentials

in hiring IT technicians. The preference for bachelor's degrees in large organizations and

public sector organizations may be explained by their greater tendency to have these

institutional influences on their hiring; for example, more formal hiring requirements and

procedures, more active role of human resources staff. Large organizations and public

sector organizations are more likely to have more formal methods to personnel

management. A hiring manager from a public organization in Detroit described the hiring

process as follows:

> There's a whole bureaucratic process about getting a vacancy filled. It
> needs to be reconfirmed with our board of commissioners, "Is that okay?"
> "Yes, it's ok. You still need a person who can do this function." And once
> it gets through that, then it goes to the HR department. They would
> actually post the position. It gets posted for two weeks. They collect all of
> the applications. They'll do an initial screening to see who meets the
> minimum qualifications of the job, and who doesn't.

The process in this public organization illustrates the aspects of the hiring process

that make for a more structured process in which standard criteria such as

educational credentials are given more attention. A hiring manager from a large

Seattle organization described the role of the human resources department in the

hiring process:

> Well, it generally starts off with the submission of a form, an employee
> requisition form, and then they contact me and say, so you got a job
> description or anything like that? Of course, and then we give it to them.
> And then sometimes we'll ask them to pre-screen candidates.

A hiring manager from a large organization in Detroit described a similar process:

> The HR group is largely involved in helping us with the job descriptions,
> the postings, the initial screening. So they work with us on understanding
> "Ok, what kind of technical skills are required for this position? What
> kind of person are you looking for? What other key attributes do they
> have to have as part of which they are that it's going to be successful in
> this position?" Then they do the initial screening of the people. It's

usually over the phone. And then they get to go "okay" and then they
present candidates to us based on that, on their screening and questions.

As part of the more bureaucratic nature of these larger organizations, the human

resources department is more involved in the hiring process, which can involve up-front

screening. In that screening process, they may be more likely to adhere strictly to higher

credential preferences than other criteria. These organizations might be more likely to

include these credential requirements on their job descriptions, reflecting differences in

organizational approaches to personnel management. Smaller organizations may be less

bureaucratic and thus be less formal in terms of their hiring requirements and procedures

in their employment of IT technicians. For example, a hiring manager in a small

organization in Seattle described the hiring process as follows: "Usually we do our own

recruiting. Typically what we end up doing is we say we need an ad, they put it on

CraigsList, it all goes back to HR, so they've got the baseline resumes, but they put them

in a place for us and then my job is to…they don't do very much pre-sort for me."

Table 4.8: Bureaucracy in Hiring Practices, By Organization Type

%	Large	Small	Public	IT Support
Bureaucracy	73	37	89	38
Missing (N)	1	0	0	1
TOTAL	15	19	9	8

Source: Interviews with hiring managers.

When hiring IT technicians, the prospect of advancement within the organization

may be part of the decision in hiring (see Table 4.9). This factor has potentially important

implications for the meaning and use of credentials, since organizations may have hiring

preferences tailored not just for the immediate job for which they are hiring but also for

jobs to which they might expect workers to advance into after some time working at the

organization. Whether there are prospects for advancement is likely due to how the

employer organizes work. In particular, large organizations have more opportunities for advancement than small, public and IT support organizations, though these opportunities tend to require education (71% versus 42%, 44%, and 57% respectively). Often because of the greater levels of bureaucracy within large organizations, jobs are more formalized and may have job grades associated with them. These job grades can include educational levels as part of their requirements. Large organizations may prefer to hire workers with higher levels of education because they have more opportunities for advancement within their organizations that require higher levels of education. Therefore, in organizations where there are greater opportunities for advancement, the occupational role for assessing educational credentials may not be the IT technician position, but rather the position to which the IT technician might advance.

Table 4.9: Advancement Opportunities, By Organization Type

	Large	Small	Public	IT Support
Advancement Opportunities Exist Without Further Education	21	26	33	29
Advancement with Education Required	71	42	44	57
Limited Advancement	0	11	11	14
Limited Advancement with Education Required	7	21	11	0
Missing (N)	1	0	0	1
Total (N)	15	19	9	8

Source: Interviews with hiring managers.

The organizations' advancement opportunities for IT technicians are reflected, in part, by the preferences of their hiring managers for educational credentials in advancement. Hiring managers indicate the associate degree is viewed as an entry-level degree that does not necessarily lead to further advancement within a related career. Rather, many hiring managers report they prefer a bachelor's degree to promote IT

technicians to higher positions in IT. One HR hiring manager from a large organization in

Detroit stated:

> They like to see at least a Bachelor's degree for anything once you get out
> of a technician and you get more into an administrator role. That's the big
> difference. So network administrator, any of those administrator
> positions. (Detroit, large)

Hiring managers from different organization types reported similar preferences for

education in promoting as in hiring IT technicians. Hiring managers in large

organizations and public sector organizations were more likely to prefer bachelor's

degrees for promoting IT technicians to the next level of IT job than in small, IT support

(73% and 71% versus 33%, and 50%). As an IT hiring manager from a large organization

in Seattle stated:

> The expectation would be for a college degree. Certainly in moving up to
> any management position, you couldn't have it without it. All of the jobs
> are graded. Your job has a certain grade associated to it. And beyond at a
> certain grade level, the expectation would be, if you want to move into that
> grade, you'd have to have a degree. (Seattle, large)

The hiring manager mentioned the "grade level" which is characteristic of the

bureaucratic structure that influences the advancement process within a large

organization. Similarly, an IT hiring manager from a public organization in Detroit

stated:

> They got the associate's degree, a position higher up opens, it requires the
> 4-year degree, and they applied for it, and they never made it through the
> HR screening process, because they don't have that 4-year degree.
> (Detroit, public org, IT hiring manager)

In contrast, hiring managers from small organizations were more likely than those from

other organization types to report they had no preference for education in promotions. In

these cases, it was more important to see what the person knew rather than the kind of

credentials they held. For example, one Seattle hiring manager from a small organization stated: "I think [it's] more of an attitude about learning, rather than a formal kind of outcome."

Use of Degrees, By Organization Type

To understand how meaning attributed to educational credentials is translated into hiring in an organizational context, I examined how educational credentials are used in the hiring process across different organizational types. In this section, I compare the use of educational credentials across different organizational contexts. The use may be viewed as an individual hiring managers' choice, an organization's policy or outlook, or a combination of both. Both individual and organizational level influences are both important, and they likely interact with each other, so to provide a more complete understanding, the analysis draws on both individual and organizational levels of data when available. The hiring managers' preferences provide data on their individual preferences, and the job descriptions and current IT technician workforce provide information on the organizational level.

Some clear differences exist by organization type, as summarized in Table 4.11. Hiring managers in large organizations and public sector organizations prefer bachelor's degrees (92% and 89%, respectively) compared to small organizations and IT support organizations (53% and 38% respectively). Hiring managers however across all organization types had similar preferences for the associate degree, ranging from 46% to 63% across the four organization types.

When comparing preferences for bachelor's degrees versus associate degrees, some notable differences between organization types emerge. IT support organizations

are more likely to prefer associate degrees than bachelor's degrees. Perhaps these

organizations recognize the associate degree as more reflective of their specific technical

needs or see value in its demonstration of interest in the IT field. But they were also more

likely to respond they sought workers with a personal interest in technology (45% in IT

support organizations versus 26%, 20% and 11% in large, small, and public

organizations)(Table 4.1). Perhaps, in these organizations where IT support is at the core

of their work, their personal interest in technology is a more important indicator of their

ability to do the IT technician work. Notably, public sector organizations all prefer

education and specifically credentials; none reported they had no preference for

education or preferred some college. This tendency for public sector organizations to

prefer credentials might reflect their tendency to have more regulated hiring processes

that would be more likely to specify exact requirements that can be concretely measured

such as credentials. This general preference for any credential may help explain hiring

managers' positive outlook towards the associate degree in public sector organizations.

Table 4.10: Education Preferred by Managers for Hiring, by Organization Type

Education	Large	Small	Public	IT Support
Bachelor's (%)	92	53	89	38
Associate (%)	46	58	56	63
Some college (%)	0	11	0	13
None (%)	23	37	0	25
Total (N)	2	0	0	0
Missing (N)	15	19	9	8
NA (N)	92	53	89	38

Source: Interviews with hiring managers.

Organizations' job descriptions for IT technicians reveal similar trends across

organization types, although all preferences are at a lower level than among the hiring

manager interviews (see Table 4.11). Notably, the bachelor's degree is not listed in job

descriptions as often as hiring managers say they prefer it, particularly for large and

public organizations. Among large organizations, 44% list the bachelor's degree in job

descriptions, whereas 92% of hiring managers in large organizations mention it as a

preference in hiring. Among public organizations, 33% list the bachelor's degree in job

descriptions versus 89% of hiring managers who mention it as a preference (Table 4.10).

However, despite the difference in the magnitude of the organizations' preferences, the

general patterns of preference for education across organization type are fairly consistent

across the two different sources of information.

Table 4.11: Education in IT Technician Job Descriptions, By Organization Type

Education	Large	Small	Public	IT Support
Bachelor's (%)	44	15	33	20
Associate (%)	44	46	17	40
Some college (%)	22	23	50	20
None (%)	22	31	33	40
Total (N)	9	13	6	5
Missing (N)	6	6	3	3

Source: Interviews with hiring managers.

In contrast to hiring managers' preferences for credentials and their organizations'

job descriptions for IT technicians, their organizations' current IT technician workforce

provides an indication of actual hiring practices. Among current IT technicians, some

differences in levels of educational credentials exist across organization types. Table 4.12

presents information on whether at least one IT technician in the organization holds a

particular level of education. Actual levels of education among current IT technicians by

organization type indicate that the large and small organizations were more likely to

employ at least one IT technician with a bachelor's degree (67% and 72% respectively).

Public sector organizations which had higher preferences for bachelor's degrees had

lower rates of bachelor's degree holders among their current IT technician workforce

(33%). The large organizations adhered most closely to their preferences for higher levels

of education with the majority employing at least one bachelor's degree holder, although

in addition to employing many bachelor's degree holders (67%) they reported notably

high numbers of associate degree holders (56%). In fact, large organizations were more

likely to report associate degree holders among their IT technician staff than small

organization or public sector organizations (56% versus 28% and 17%, respectively). IT

support organizations reported the lowest level of educational credentials among their IT

technician staff—none reported they employed IT technicians with bachelor's degrees

while half reported they employed IT technicians with associate degrees. Public sector

organizations had a lot of variety in education among their current IT technicians

including a mix of bachelor's degrees, associate degrees, college, some college, and no

college. Why small organizations have high numbers of bachelor's degree holders but

also tend to view bachelor's degree holders negatively is not clear. It may be that other

factors are at work in small organizations that were not captured in this study.

Table 4.12: All Current IT Technicians' Education, By Organization Type

Education	Large	Small	Public	IT Support
Bachelor's (%)	67	72	33	0
Associate (%)	56	28	17	50
Some College (%)	33	22	67	50
None (%)	33	28	50	50
Total (N)	9	18	6	4
Missing (N)	6	1	3	4
NA (N)	0	0	0	0

Source: Interviews with hiring managers.

Organization Type Specific Ideas about Degrees

To examine the extent to which organizations of a similar type share an outlook

towards educational credentials, I examine the meanings hiring managers attributed to

associate and bachelor's degrees by their organization type. Shared meanings about

educational credentials among hiring managers by organizational types may indicate

either a preference within organizations for hiring managers with a particular outlook towards credentials or a preference among hiring mangers with a particular outlook to work in certain types of organizations. Alternatively, the organizational environment may have a role in shaping hiring managers' outlooks. This study does not examine in detail the directionality of these issues but examines whether any indication exists of common organizational outlooks towards credentials by organizational types. In this examination of meaning, I rely on the same categories and definitions of meanings that I used in the previous chapter in the examination of meaning by labor market context, as described in Table 4.1. Table 4.13 summarizes the meanings hiring managers attributed to educational credentials by organization type as expressed through their reports of qualities expected in degree holders.

Table 4.13: Qualities Expected in Associate and Bachelor's Degree Holders, By Organization Type

Qualities (%)	Large		Small		Public		IT Support	
	AA	BA	AA	BA	AA	BA	AA	BA
Cognitive								
Ability to learn	24	15	21	9	30	40	27	18
Business knowledge	5	10	8	13	0	0	0	0
Hands-on skill	10	0	4	0	20	30	9	0
Organizational skills	0	30	0	35	10	20	0	27
Technical skill and knowledge	52	40	58	17	70	40	36	36
Thinking skills, problem solving	19	15	21	9	30	40	27	18
Non-cognitive								
Commitment to career	33	30	13	13	30	10	36	27
Communication skills	19	20	17	17	30	50	27	36
Discipline - completed something	33	40	46	48	10	40	27	36
Confidence and leadership	5	0	8	0	30	10	0	9
Fit within organizational culture	33	5	13	0	30	0	36	9
Follows directions/procedures	0	30	0	13	0	10	0	27
Maturity	10	5	0	0	0	0	9	9
Motivation	5	15	17	13	30	10	36	18
Well-roundedness	10	0	8	9	20	30	18	9

Institutional								
Eager to prove self	10	0	4	4	0	0	0	0
Entitlement	0	5	0	9	0	10	0	9
Stigma, Lack of ability, initiative, or skill	62	0	25	0	20	0	45	0
Overqualified	0	0	0	22	0	0	0	0
Other								
Lack of financial resources	29	0	13	0	10	0	9	0
Meaning is not clear	10	0	13	0	30	0	18	0
No different from BA	5	0	8	0	20	0	18	0
A good start...need to continue to Bachelor's	10	0	33	0	10	0	27	0
Missing (N)	1	2	2	3	1	1	0	0
Total (N)	22	22	26	26	11	11	11	11

Source: Interviews with hiring managers.
AA=associate degree, BA=bachelor's degree

Among the organization types some variation exists in the meanings hiring managers attribute to educational credentials when looking at the most common meaning attributed to credentials. Hiring managers in small, public sector, and IT support organizations all attributed technical skill and knowledge to associate degree holders more than any other meaning.

Notably hiring managers in large organizations also held negative views on the associate degree. Nearly two-thirds reported the associate degree signified a lack of ability, initiative, or skill (62% in large organizations versus 25%, 20% and 45% in small, public and IT support organizations respectively). Rather than signify different positive qualities, the most common qualities signified by the associate degree in large organizations compared with other organizations (public sector, small and IT support) are negative. In contrast, hiring managers in large organizations also did not mention any negative qualities attributed to bachelor's degrees, whereas at least some hiring managers

in other organization types mentioned bachelor's degree holders were either entitled or overqualified.

When examining the full range of meanings hiring managers attributed to educational credentials, a few key differences across the organization types emerged in the qualities hiring managers sought in IT technicians. Hiring managers in public sector organizations had a generally more positive outlook towards associate degree holders than hiring managers in other organization types. They were more likely to report that the associate degree signified technical skills than hiring managers in large, small, and IT support organizations (70% versus 52%, 58% and 36% respectively). They were also less likely than hiring managers in large and IT support organizations to report they expected associate degree holders to lack ability, initiative or skill (20% versus 62% and 45%); hiring managers in small organizations had similar views on the lack of ability, initiative, or skill (25%). These differences in meanings suggest that public sector organizations may have different outlooks toward credentials.

Hiring managers in small organizations also held distinct meanings. Most notably, in small organizations, hiring managers reported bachelor's degree holders were overqualified (28%). Hiring managers in no other organization type reported that the bachelor's degree signified the worker was overqualified. Small organizations may be less inclined to prefer educational credentials because of their less formal employment procedures and limited opportunities for advancement to positions that would require educational credentials. Despite this somewhat negative perception of the bachelor's degree, hiring managers in small organizations did not have many other noticeable

differences in the qualities they expected to find in credential holders when compared to other organization types.

To better understand the occupational role in each organization type, this examination sought to provide insight into the differences in meaning by understanding the work demands hiring managers give priority to across the different organization types. Some notable differences suggest explanations for the differences in use observed across organization types (see Table 4.14). Communication, both written and verbal, was more important in large and public sector organizations than in small and IT support organizations (58% and 56% respectively versus 36% and 27% respectively); this preference potentially explains the greater emphasis on credentials. These organization types require more complex communication to successfully navigate and successfully operate within their bureaucratic structures (this issue will be examined in more depth later in this chapter) and infer that credentials signify these more advanced communication skills. For example, one hiring manager from a large organization in Detroit explained:

> Sharing information is, number one, I think. So many technology people, they don't share information. We get people here who have come from other companies, and they come in here and they're like "You're just going to write down what you did, and everyone is going to know, and then the next time, they don't need to come and ask me!" "That's right, and if it happens at night, we don't have to call you and wake you up either! Did you like that?" So, I think sharing information, just the ability to be aware of others and be aware of what other…"If I know this, who else needs to know this?" That's huge, because I think management can see how much that helps the organization.

This hiring manager expressed the importance of communicating information to others in the organization as a form of organizational learning; this is something more necessary to be done in a large organization, in which lessons learned are

less likely to be informally shared and require more formal mechanisms. Another

hiring manager from a large organization in Detroit expressed the following

concern about communication from an organizational perspective.

> From my perspective, though, the really important things for an IT organization, and I'm going to sound like Tony Robbins here, but it's communication. It's soft skills. I can teach people, I can teach a good person technical skills. I'm not looking for the person who's got the most polished technical skill set. I need the person I can coach. I need the person who's going to represent my organization. This is across the board, especially with the IT technicians – the people who can represent and work with my user and provide value. That's what is important. If I end up with a guy out here who's completely qualified in setting up Microsoft Office, but he's a total jerk to my users, he doesn't do me any good.

A hiring manager in Detroit spoke about the importance of communication skills

and the ability to partake in company meetings with a relatively large group.

Again, this reflects the particular emphasis on communication skills needed in a

large organization.

> We have an 8:30 meeting every single morning here, which is our IT service management meeting, where we review all of the high impact IT incidents that are open or recently closed and it amazes me the extent to which some of our most exceptional developers and support technicians can't come to a room in front of 30 people and give a one-minute synopsis in a meaningful way of what happened, what was done, and what steps are going to be taken so that it doesn't happen again. That's not really a speech, just a status….It's speaking and writing. And that's probably the biggest thing, for me, is looking for people who can do that.

The importance of communicating within the organization is further highlighted

by a hiring manager from a public organization in Detroit.

> Because if they need to send out emails to people, to either communicate a status of a problem or to let them know when things are going to be taken down, we need to do some maintenance services… They need to be able to phrase those things in a pleasant and positive-oriented manner, instead of "Uh, this thing is down. We'll let ya know when it comes back up."

While communication was mentioned by hiring managers in other organization types, the reasons and explanations why are not based in examples of work situations that are linked to operations at larger organizations. Rather, they deal with how technicians relate to other staff in more direct, one-on-one situations.

Table 4.14: Qualities Sought in IT Technicians, By Organization Type

Qualities Sought	Large	Small	Public	IT Support
Cognitive				
Ability to learn	42	44	22	18
Business knowledge	21	36	22	9
Hands-on skill	11	4	22	9
Jack of all trades	11	8	11	18
Thinking skills	53	32	33	36
Technical skills and knowledge	58	72	78	64
Non-cognitive				
Accountability	11	0	0	18
Communication skills	58	36	56	27
Customer service, able to work with users	58	52	67	45
Follows procedures	16	8	11	27
Loyalty	5	24	22	0
Motivation	21	12	22	9
Personal interest in technology	26	20	11	45
Teamwork, ability to work with others	26	36	44	18
Missing (N)	0	1	0	1
TOTAL	22	26	11	11

Source: Interviews with hiring managers.

The ability to learn is another characteristic with notable differences across organizational type, with large and small organizations prioritizing this skill more often than public and IT support organizations (42% and 44% versus 22% and 18% respectively). To some extent, this emphasis may be due to the needs and hiring practices of private sector organizations. Some hiring managers reported the need to get staff members up-to-speed quickly and, thus, the importance of the ability to learn new things.

For example, one hiring manager from a large organization in Seattle stated the

following:

> So, we bring people in, and then when they're in the four weeks of training, that's like a probation, too. How quickly are they picking things up as we train them on our knowledge management system and our ticketing system and stuff?

Furthermore, private sector organizations may seek workers with the ability to learn

because they can be more flexible workers who may take on different roles within the

organization. In the large organizations there may be more kinds of administrative

systems and structures to understand and learn about. A hiring manager from a small

organization in Seattle said he values:

> the ability to learn other complex matters in IT, flexibility, working in a team. Because I think if you come in with IT help desk, it's a possibility that you could go on and do other things, but you've got to have the flexibility and the wherewithal to go out and learn something new or be able to go out and learn something new or be able to learn access database or something else in order to move forward and make your job more interesting. I think it'd be more valuable to the organization.

This quote illustrates the importance of the ability to learn rather than credentials

in advancing within the context of a small organization. Another hiring manager

from a small organization in Seattle expressed both of these sentiments in the

following statement:

> The way a lot of people get those skills is to get their foot in the door in some way, shape, or form, typically for a small company, because smaller companies tend to look less at credentials and more at experience, because, and I hate to be crass about it, but you're looking to get the most bang for your buck out of every head that you bring into the business. And quickly. You don't have a long time to develop the person before they have to be actually performing a function, so I think that experience is the quickest time to market. And I think the way a lot of people gain that experience….when I hired on with a small company the way I learned it is, my boss said you're installing one of these things tomorrow, and I said okay, can I have the book? And I'd take the book home that

night and I'd read it and I'd mull my way through the next day, and if
you're curious enough and disciplined enough–that's the discipline part
that I talked to you about…

From the perspective of a small private company, it important to hire IT technicians who

can learn quickly, so they can become productive quickly, as well as handle several kinds

of tasks.

Views of Community Colleges, By Organization Type

In addition to examining the meaning of credentials in relationship to the

occupational role, I examined their relationship to hiring managers' views of community

colleges in order to gain some insight into these meanings (see Table 4.15). Hiring

managers across the organization types viewed community colleges similarly. They

commonly viewed community colleges as workforce oriented; more than half up to two-

thirds of hiring managers in the different organization types reported that the community

college played a workforce related role, such as providing hands-on instruction. Hiring

managers in most of the organization types also often reported that they viewed

community colleges as transfer oriented—about half of the hiring managers in large,

small and IT support organizations. The one exception was that only about one quarter of

hiring managers from public sector organizations reported community colleges were

transfer oriented. Perhaps, this lack of focus on the transfer function of community

colleges reflects a greater focus on the workforce function and, thus, public sector hiring

managers' more positive perception of the associate degree as a credential relative to the

hiring of IT technicians. Another notable difference is that hiring managers in IT support

organizations were more likely to view community colleges as less expensive than other

colleges. For example, one Detroit hiring manger from an IT support organization stated:

"Community college, you get a great education for a great price." It is not clear, however, how this view relates to the meanings they hold about credentials.

Table 4.15: Hiring Managers' Views of Community Colleges, By Organization Type

Views of Community Colleges	Large	Small	Public	IT Support
Workforce oriented	*62*	*65*	*64*	*50*
Connected to industry	14	8	9	10
Good for technical fields, hands-on, specific	38	58	45	20
Retraining is good	19	4	18	20
Good resource for hiring	10	4	9	0
Transfer-oriented	*48*	*50*	*27*	*50*
Good entrance to college, prepare for 4-year transfer	33	38	27	30
Go to gain maturity and direction; not ready for 4-year college	29	19	0	20
Smaller classes, teaching focused	10	8	0	10
Other				
Less rigorous, looked down on	19	31	18	20
Less expensive, affordable	33	35	36	60
No different from 4-year	14	4	18	10
No impressions	5	4	0	10
Missing (N)	1	0	0	1
Total	22	26	11	11

Source: Interviews with hiring managers.

Another potentially important factor understanding the meaning and use of educational credentials is hiring managers' experiences with community colleges. Some notable differences across organization types exist in the experiences hiring managers report with community colleges (see Table 4.16). In particular, hiring managers in public sector organizations are more likely than others to report they attended a community college themselves (60% versus 36%, 44% and 27%, large, small and IT support organizations respectively) and had a professional experience with a community college (60% versus 41%, 32% and 45%, large, small and IT support organizations respectively); clearly, they are more likely to have these personal and professional experiences with

community colleges than hiring managers in other organization types, particularly those

in large organizations where the difference is greater than 20% on both types of

experience. None of the hiring managers in public organizations reported they had no

experiences with community colleges. This greater level of personal experience might

explain these hiring managers' relatively more positive stance towards the associate

degree.

Another important difference is with hiring managers in IT support organizations.

These employers were more likely to have conducted hiring or recruiting in community

colleges (64% versus 27%, 44%, and 30%, large, small, and public organizations,

respectively). Their greater use of community colleges as a direct source of workers

supports their stated preferences for associate degree holders and provides further support

for the notion that they might indirectly believe students in community college programs

are demonstrating their interest in technology by attending these programs.

Table 4.16: Hiring Managers' Experiences with Community Colleges

Type of Experience (%)	Large	Small	Public	IT Support
Attended Self	36	44	60	27
Knows Someone Who Attended	32	8	20	27
Professional Experience (i.e. advisory board or employer-community college partnership)	41	32	60	45
Hiring and recruiting	27	44	30	64
None	9	8	0	9
Missing (N)	0	1	1	0
Total (N)	22	26	11	11

Source: Interviews with hiring managers.

Summary of Findings

Several key findings emerge from this analysis of educational credentials based

on the institutional, labor market, and organizational context. These findings provide

some insight on the meanings associated with educational credentials and suggests some possible explanations for these meanings.

A broad examination of the meanings of degrees reveals that hiring managers hold many ideas about degree holders in common across degree types—associate and bachelor's degrees. Specifically, hiring managers most often expected degree holders to have communication skills, thinking skills, technical skills, and discipline—all qualities postulated in common theories of educational credentials. While this study does not adjudicate between human capital and conflict perspectives, it supports the notion that education socializes people with a range of qualities related to work.

Despite these common ideas about degrees, hiring managers held some unique ideas about associate and bachelor's degrees that reflect their holders' awareness of their social role. Qualities uniquely expected in associate degree holders were hands-on skill and eagerness to please, as well as a lack the ability and skill relative to the bachelor's degree. The associate degree is judged in relationship to the bachelor's degree. Bachelor's degree holders were expected to be entitled and lack real world knowledge. These unique traits illustrate the relative status differences between these two credentials. These are areas where associate degrees diverge from bachelor's degrees in terms of meanings. Bachelor's degree holders have power over associate degree holders; their degrees have meanings that in a sense take away from associate degrees. These unique meanings reflect the degree holders' awareness of their degrees' social role: the associate degree as somehow lacking and the bachelor's degree as privileged.

When examining the match between these degrees and occupational roles, hiring managers' ideas about degrees do not fully match ideas about the IT technician

occupation. When matched with IT technician occupations, both credentials are lacking in the qualities sought for these workers. Hiring managers in both labor markets commonly sought customer service, teamwork, and personal interest in technology in IT technicians but did not expect degrees to indicate these qualities. This finding supports the notion that credentials do not have a strong role in allocating persons to positions and hiring managers seek other sources of information on workers in the hiring process.

Beyond these broadly shared ideas, other ideas about educational credentials relate to the local labor markets contexts in terms of its educational structure. Detroit hiring managers were more likely than Seattle hiring managers to expect the associate degree to signify commitment to career, while Seattle hiring managers were more likely than Detroit hiring managers to indicate an associate degree signifies a lack of ability, initiative, or skill. Employer preferences for both degrees were similar across the labor markets, as hiring managers more often preferred bachelor's degrees than associate degrees. Differences emerged in the actual hiring practices reflected in the current workforce. In Seattle, associate degrees are more common among current IT technician staff whereas in Detroit it is more likely for IT technicians to have some college (but no degree).

Two reasons may explain the difference in views across labor markets. First, the differences in the average education levels in the populations may create a point of comparison when judging these credentials. In Detroit, where the average educational level was lower, the point of reference when examining the associate degree is more likely to be some college rather than a bachelor's degree. In contrast, in Seattle, with its higher level of education, the bachelor's degree is more likely to be the point of

comparison. With this in mind, it is not surprising that hiring managers in Detroit viewed the associate degree more favorably than hiring managers in Seattle, who more often reported the associate degree indicated a lack of ability, skill, or initiative. The higher level of educational attainment in Seattle may create a sense of stigma for associate degree holders that does not exist in other labor market contexts. While these two labor markets have similar IT technician roles, the qualifications they seek and the signifiers of these qualifications vary based on the labor market climate.

Second, hiring managers' impressions of community college differ by labor market. In Seattle they view community colleges as more workforce-oriented, while in Detroit they are viewed as more transfer-oriented and a "good deal." This difference in their views may explain how they are connected to institutional charters in higher education with varying levels of status. In Detroit, for example, associate degrees may be more connected to the relatively more established charter of the four-year university. Therefore, rather than draw on a more stigmatized vocational charter, the community colleges might gain more legitimacy from this institutional charter. In contrast, hiring managers in Seattle viewed community colleges as more workforce-oriented and, thus, less like four-year colleges and universities. Rather, hiring managers viewed their distinct mission as workforce-oriented which may explain the relatively more stigmatized views of the associate degree.

In addition to labor market context, this analysis provides some support for the notion that organizational context is related to the meaning and use of educational credentials. Hiring managers in large and public sector organizations have a greater preference for bachelor's degree holders for IT technician positions than those in small

and IT support organizations. This preference may be partially due to the greater level of bureaucracy within these organization types. Hiring managers in these two organization types differed in the degree to which they had positive or negative views of the associate degree. Although hiring managers in public sector organizations preferred the bachelor's degree, they had relatively positive views on the associate degree, and preferred it more often than hiring managers in large organizations, who often viewed it negatively. Large organizations had more opportunities for advancement including those that required education, so their preference for credentials, particularly bachelor's degrees, may be linked to this aspect of their organizational structure. IT support organizations tended to have weaker preferences for educational credentials. They do, however, show some preference for associate degrees relative to other organization types; they might indirectly find in associate degree holders some evidence of the personal interest in technology they seek in workers.

A key finding of the study is that credentials exist in a relational context. Degrees take on meaning in relationship to social roles, like occupational roles, other degrees, local labor market social structure (specifically, the level of education in a local labor market or the educational institutions in a local labor market), and the organization (specifically, the degree of bureaucracy). This finding exists in contrast to common theories on educational credentials that propose standard meanings associated with credentials regardless of the type of credential or the context of its use. In this way, broad theoretical perspectives that propose general meanings of credentials miss some more specific meanings that are unique to particular degrees and are only understood by looking at the specific context of that degree. By examining credentials in the context of

their use in the hiring process for a specific occupation, this study yields some unique

findings for theory and practice. These implications are discussed in the concluding

chapter.

CHAPTER V: CONCLUSION

In this study, I sought to examine educational credentials using a different approach from the common perspectives of human capital and conflict theory. This alternative perspective included several key elements. Most fundamentally, this perspective focuses on a direct examination of employers. Guided primarily by institutional theory, the analysis examined the meanings employers attributed to credential holders in their social context. Several key findings from this study using this approach to the study of educational credentials have implications for both theory and practice. In this chapter, I discuss these implications, as well as the limitations of this research and suggestions for future research.

Implications for Theory

This research has several theoretical implications. Among these implications, some provide refinements in the understandings of current theoretical approaches, and also move beyond these approaches to yield an alternative approach to the study of educational credentials. Ultimately, this new perspective provides an additional understanding of educational credentials that takes into account their context, including the occupation, the labor market and the organization.

First, this study provides evidence that helps to refine our understandings of employers' perceptions of educational credentials. The common ideas hiring managers' held about credentials include a range of qualities highlights the complexity of the meanings and the potential difficulty of adjudicating between human capital and conflict perspectives. Nevertheless, that so many qualities reflecting socialization processes were held in common across the degrees provides some support for the notion that credentials

have institutionalized meanings. More importantly, the unique meanings associated with educational credentials provide evidence that credentials have meaning relative to each other and their specific social roles and hierarchy. When examining the broad meanings held about educational credentials, these findings provide support for an institutional perspective as posited by Meyer (1977). This perspective helps to make sense of the unique and often negative meanings attributed to educational credentials that are not directly explained in other common perspectives on educational credentials.

In addition to refining to our understanding of current theoretical approaches to educational credentials, this study provides evidence in favor of a perspective that accounts for the context in which credentials exist. This perspective provides a broader overarching framework within which to consider existing theoretical perspectives and their sources of meaning and variation. To this end, the central goal of this study was to examine the role of context in the meanings hiring managers attribute to educational credentials and how they use them in hiring. This study examined the meanings hiring managers attributed to credentials relative to their local labor market context and their organizational context. The key finding is that these contextual issues matter for understanding educational credentials and should be taken into account by theoretical perspectives rather than strive for universal explanations.

In terms of the labor market context, the qualities hiring managers expected in credential holders were linked to the particular circumstances of their labor market as suggested by labor market theory. These differences in meanings illustrate the importance of the particular context in which a credential is evaluated. This insight is a change in the way theoretical perspectives typically approach the study of educational credentials,

seeking universal explanations. Instead, these explanations should account for contextual factors, like the labor market, that shape differences in the role of educational credentials. The role of the labor market suggests that credentials may be judged relative to their context and do not have an absolute and consistent meaning from place to place. Future theory and research on educational credentials should incorporate the labor market context as a part of the examination to further understand its relationship to credentials.

In addition to the labor market context, the organization type is another potentially important contextual factor in the role of educational credentials. Findings from this study suggest that different organization types have different emphases on educational credentials when hiring IT technicians linked to characteristics of their organization. Since some of the underlying reasons for these findings are not entirely clear, more research is needed on the organizational context. Nevertheless, these findings are suggestive that organizational context may play in role in how credentials are viewed and used when hiring IT technicians. This issue warrants more exploration in further studies.

The overall theoretical contribution of this study is to demonstrate that context plays a role in the meaning of credentials. This conclusion means that broad-based theoretical perspectives that suggest a constant meaning for credentials are limited and miss the variation based on a credential's context and point of comparison. By examining these issues, this theoretical approach adds a new layer of complexity to the understanding of educational credentials and increases the depth of that understanding by recognizing the role of social context.

Implications for Practice

Not only does this study make contributions to theory on educational credentials, it also generates some practical suggestions for educational practice. A better understanding of the role of context and how it shapes employers' views of educational credentials can be helpful to educational institutions that seek to engage with employers. In addition, policymakers and practitioners currently engaged in promoting greater college completion should also seriously consider employer perceptions of credentials when designing programs and be mindful of the variation in social context.

Better knowledge can help colleges target employers to work with as they seek to help students find employment. While they are preliminary, these findings on organization type suggest some possible implications for community college-employer outreach that are targeted towards specific organization types. Despite their reservations about associate degrees, large organizations, with their emphasis on credentials, might offer opportunities for associate degree holders committed to continue their studies to the bachelor's degree. More formal efforts to facilitate transfer to four-year programs, such as improved transfer agreements and/or applied baccalaureate programs, may best utilize the organizational outlook of these organizations.

In contrast, public sector and small private organizations may be particularly important candidates for community college outreach, since they appear to have more positive views of associate degree holders. Since public sector organizations are more bureaucratic, there may be particular ways in which community college graduates might gain access to employment, either through formal programs such as internships or work-study. Small organizations may require special outreach efforts since they may offer

opportunities for employment among associate degree holders. Although this outreach may be time consuming given the high number of small employers, it might be worthwhile if it helps to offer more employment opportunities for associate degree holders.

Labor markets have a role in the value of credentials. Employers' decision to hire associate degree holders is based on perceptions of degrees and the existing alternatives available. Where there are large numbers of four-year degree workers typically employed in the labor market's dominant industry, employers will draw from this group and hold relatively less positive perceptions of associate degree holders. This is a key difference between employer hiring practices in the two labor markets. From this difference, there are several recommendations for community colleges.

First, community colleges may seek to market their students and programs in a way that is targeted to the particular issues of their labor market. In labor markets with high levels of education like Seattle, community colleges may need to conduct more intensive outreach with employers to combat the stigma of their credentials. But, they also need to recognize the limits of their ability to change employers' ideas of credentials, given the grounding of these ideas in the social context of their labor market.

Second, in how they view credentials, colleges may focus outreach efforts on marketing and communicating to employers their institutions' overall mission and purpose. At the same time they might also realize the limits of their credentials based on their institutional reputation.

Finally, community colleges also need to develop strategies to help support students in their pursuit of the bachelor's degree, given the reality that many employers

may prefer this credential. This may mean they need to develop more transfer programs with strong articulation agreements that will allow their students to continue their studies.

Beyond the labor market differences, employers shared some key perceptions of degree holders that provide useful feedback for colleges. While they expected degree holders to possess several qualities that were important for the positions for which they were hiring, certain qualities were lacking in both associate and bachelor's degree holders. Notably, employers reported they expected degree holders to be lacking in customer service and teamwork abilities. Given this, colleges (both community colleges and four year colleges) regardless of labor market might consider evaluating their programs to determine the extent to which these abilities are fostered by their curriculum. They might identify ways to increase opportunities for students to build these abilities. This might include more classroom activities or more internships and/or work-based learning. Since many employers also sought work experience when hiring workers, it may be particularly important for colleges to develop ways to integrate more work experience into their students' experiences. To the extent colleges believe they are doing this well, they might conduct more employer outreach to better demonstrate the abilities of their students and counter these perceptions.

Overall, the findings provide support for the idea that associate degrees are viewed as good preparation for certain occupational fields and in certain contexts. However, it must also be noted that credentials are limited in how much they can facilitate employment. In light of this, educational institutions should be aware of and promote among their students other qualifications that hiring managers seek in workers, such as work experience. Educational credentials are one part of the hiring process—

important but not completely central. A more nuanced understanding of their role in the hiring process can help fine tune how policymakers and practitioners seek to promote their use in helping students achieve labor market success.

Implications for Future Research

While the study findings provide support for these theoretical and practical conclusions, they should be viewed as preliminary evidence in need of additional research to replicate and be expanded upon. Fundamentally, this study was of an exploratory nature to determine whether this examination of context merits further research. Indeed it does, though the conclusions drawn from this study should be viewed as preliminary. As a case study, the sample was intentionally selected to explore and test this new theoretical approach. This study is not a statistically representative sample of hiring managers or organizations. As such, the case study findings provide support for this theoretical approach that focuses on the meaning of credentials among hiring managers and its relationship to occupational roles in specific labor market and organizational contexts. Despite its limitations, these case study findings provide support for further examination of this new approach to understanding educational credentials.

Given that it is small in scope, limited to only two labor markets with variation in industry and education levels, and only focuses on one occupation, further research would need to extend this examination. Future research should replicate this examination in similar contexts to further validate these findings and should also examine other potential sources of contextual variation including other occupations, labor market types, and organization types.

Other occupations would also be of value to examine, particularly those in the middle of the occupational spectrum, like IT technicians. Among these occupations it would be useful to further examine other types of technicians, which may vary depending on the degree of authority the technician has in the workplace (Darr and Scarselletta 2002).

Likewise, other middle skill occupations that would be of use to examine are those that are subject to regulation, such as nurses and other health care professionals. This study does not explore the role of regulation in the meaning and use of credentials, but in certain occupational areas these regulative influences are quite strong, and may act as another influence on hiring managers' beliefs and actions. For example, for registered nurses, numerous states legislatures are discussing whether to raise the minimum education for the occupation from the associate degree to the bachelor's degree. While these laws are not yet in effect, their discussion may influence, and be influenced by, hiring managers' current hiring practices.

Further studies should be done on the labor market context to better understand its role in the value of educational credentials. Studies could seek to replicate this current study in other similar labor market types; that is, in large metropolitan areas with dominant industries and both low and high average education levels. This study provides evidence that these two labor market conditions vary but additional studies should seek to verify these findings in other similar contexts.

In addition to replicating these findings, further research should examine other kinds of labor market contexts to determine whether they also have a relationship to educational credentials and, if so, seek to understand the nature of that relationship. In

particular, labor market size and urbanicity are not examined in this study since both Detroit and Seattle are large urban areas. Hiring managers in smaller urban areas and rural areas might have yet another set of views and uses of credentials based in these distinct labor market contexts. This relationship to educational institutions and knowledge of educational credentials may be different in a smaller locale with fewer institutions that are better understood in the population. Furthermore, the demands of the workplace may be different in these locales. Because of the smaller size, hiring managers may rely more on their social networks in hiring workers, since they may be more likely to know people in their labor market. Also, the industry focus of smaller labor markets might lead to variation in their work structures to the extent they are less likely to have larger, more bureaucratic organizations. As this example illustrates, further research should also examine the interaction between labor markets and organization types. Future research should examine this issue and ensure that large enough samples of employers of varying organization types in particular labor markets are selected in order to allow analysis of this issue. I did not address this issue in this current study because the number of cases of organization types within the two labor markets was too small to justify their analysis.

Additional studies should be done to fully examine the issue of organizational context. This study provides some preliminary evidence to indicate that the organizational context has a role in how educational credentials are used in the hiring process. In particular, the degree of bureaucracy and the opportunities for advancement may be related to their use in large organizations. Additional organizational characteristics should also be examined to better understand the role of their context,

particularly within small organizations. For example, it is possible that more prestigious organizations (particularly prestigious small organizations) may have a greater preference for educational credentials. Additional research should identify and examine these other organizational characteristics, as well as continue to examine the current findings in additional organizations.

This study did not examine the organizational context of the temporary placement organization since it did not fit the criteria that were at the basis of this study. However, future research should examine the role of the temporary placement organization in facilitating the employment of IT technicians and how this role interacts with their educational credentials. This research would examine whether these organizations provide information to hiring managers in other organizations that replaces the use of educational credentials or alters the meaning and use of educational credentials in hiring. This future research could also examine the outcomes of community college graduates employed by temporary placement organizations to understand their trajectories compared with those employed in other organization types.

A broader program of research would seek to apply this theoretical approach to other educational credentials. While this study focused on the particularly understudied area of associate degrees, the study of other educational credentials would also benefit from this type of approach. Research could be done on the role of graduate degrees, for example, in different labor market and organizational contexts. Broadening the examination to other educational credentials would also allow for the examination of a broader range of occupations. This examination would allow for a more thorough examination of labor market context, in particular, since these higher level occupations

are noted for operating on more of a national scale than other occupations. The goal of this program of research would be to understand all the sources of variation from different occupational, labor market, and organizational contexts for different credentials that would explain the meaning of credentials than more broadly stated theoretical approaches currently do. Ultimately the research would yield a framework that looks widely at contextual variation to determine whether certain meanings are more salient with certain contexts.

Future research could also examine these issues using different methodological approaches that build on this study's findings. Data collection among employers could be conducted more widely with surveys of hiring managers using the meaning hiring managers reported in this study and subsequent extensions of it. This approach would capture more employers and a more generalizable sample.

Another important extension of this research would be to develop better measures of the actual skill content of work and compare them with these employer perceptions. This research would examine the actual reality of workers and the workplace by also examining workers and their work roles through interviews of workers and observations of their work. It would help determine how well hiring managers assess the qualities needed among their workers, and how this matches with the kinds of qualities actual credential holders possess. The approach to this type of research would be challenging—and would need to include multiple sources of measurement, including observations of work, interviews with workers, and assessments of credential holders and workers' skills and abilities.

Furthermore, efforts to measure the actual skill content of the workplace in comparison to employer perceptions would also examine the skills actually learned in school. Like measuring the skill content of jobs, measuring the actual qualities gained through schooling would be a challenging effort but would be particularly useful if done in conjunction with this examination of the workplace. Current research that more directly measures students' learning outcomes questions what is actually gained in college (Arum and Roksa 2010). The alignment of these research efforts would help improve the understanding of the actual role of credentials in the hiring process (as measured by employers' perceptions and use of credentials) versus their actual role in preparing people for work (as measured by the skills gained through school and the skills needed in the workplace). Bringing these approaches together viewed through a contextual perspective could potentially generate many further insights on educational credentials.

This program of research would be time-consuming and challenging but would provide a more complete understanding of educational credentials and their role in economic success than current theoretical perspectives offer. This current study is one small step towards building this larger research agenda.

REFERENCES

Althauser, Robert. 1989. "Internal Labor Markets." *Annual Review of Sociology* 15:143-161.

Altonji, Joseph and Charles Pierret. 1997. "Employer Learning and the Signaling Value of Education." US Department of Labor, Bureau of Labor Statistics, Washington DC.

Andersen, Ib, Finn Borun, Peer Hull Kristensen, and Peter Karnoe. 1995. *On the Art of Doing Field Studies: An Experience-based Research Methodology*. Copenhagen: Handelshojskolens Forlag.

Arrow, Kenneth J. 1973. "Higher education as a filter." *Journal of Public Economics* 2:193-216.

Arum, Richard and Josipa Roksa. 2010. *Academically Adrift: Limited Learning on College Campuses*. Chicago: The University of Chicago Press.

Barley, Stephen R. and Julian E. Orr. 1997. *Between craft and science : technical work in U.S. settings*. Ithaca, N.Y.: IRL Press.

Baron, James N. and William T. Bielby. 1980. "Bringing the Firms Back in: Stratification, Segmentation, and the Organization of Work." *American Sociological Review* 45:737-765.

Becker, Gary Stanley. 1993. *Human capital: a theoretical and empirical analysis, with special reference to education*. Chicago: The University of Chicago Press.

Beggs, John and Wayne Villemez. 2001. "Regional Labor Markets." in *Sourcebook of Labor Markets: Evolving Structures and Processes*, edited by I. Berg and A. Kalleberg. New York: Kluwer Academic/Plenum Publishers.

Belfield, Clive and Thomas Bailey. 2010. "The returns and benefits to community college." *Community College Review*.

Berg, Ivar. 2003. *Education and Jobs: The Great Training Robbery*. New York: Percheron Press.

Bill & Melinda Gates Foundation. 2009. "*Postsecondary success*." Bill & Melinda Gates Foundation, Seattle.

Bills, David B. 1988a. "Credentials and Capacities: Employers' Perceptions of the Aquisition of Skills." *The Sociological Quarterly* 29:439-449.

—. 1988b. "Educational credentials and hiring decisions: what employers look for in new employees." Pp. 71-97 in *Research in Social Stratification and Mobility*, vol. 7, edited by A. L. Kalleberg. Greenwich, CT: JAI Press.

—. 1988c. "Educational Credentials and Promotions: Does Schooling do More than Get You in the Door?" *Sociology of Education* 61:52-60.

—. 1990. "Employers' Use of Job History Data for Making Hiring Decisions: A Fuller Specification of Job Assignment and Status Attainment." *The Sociological Quarterly* 31:23-35.

—. 1992a. "The Mutability of Educational Credentials as Hiring Criteria: How Employers Evaluate Atypically Highly Credentialed Job Candidates." *Work and Occupations* 19:79-95.

—. 1992b. "A Survey of Employer Surveys: What we Know About Labor Markets from Talking with Bosses." Pp. 3-31 in *Research in Social Stratifiction and Mobility*, vol. 11, edited by R. Althauser and M. Wallace. Greenwich: JAI Press, Inc.

—. 2003. "Credentials, Signals, and Screens: Explaining the Relationship between Schooling and Job Assignment." *Review of Educational Research* 73:441-469.

—. 2004. *The sociology of education and work*. Malden, MA: Blackwell Pub.

Black, Dan, Natalia Kolesnikova, and Lowell Taylor. 2009. "Earnings Functions When Wages and Prices Vary by Location." *Journal of Labor Economics* 27:21-47.

Bourdieu, Pierre. 1984. *Distinction: a social critique of the judgment of taste*. Cambridge, Mass.: Harvard University Press.

Bowles, Samuel and Herbert Gintis. 1976. *Schooling in capitalist America: educational reform and the contradictions of economic life*. New York: Basic Books.

—. 2002. "Schooling in Capitalist America Revisited." *Sociology of Education* 75:1-18.

Bowles, Samuel, Herbert Gintis, and Melissa Osborne. 2001. "The Determinants of Earnings: A Behavioral Approach." *Journal of Economic Literature* 39:1137-1176.

Bridges, W.P. 1996. "Educational credentials and the labor market: an inter-industry comparison." Pp. xv, 358 p. in *Generating social stratification : toward a new research agenda*, edited by A. C. Kerckhoff. Boulder, Colo.: Westview Press.

Bridges, William P. and Wayne J. Villemez. 1991. "Employment Relations and the Labor Market: Integrating Institutional and Market Perspectives." *American Sociological Review* 56:748-764.

Brint, Steven and Jerome Karabel. 1991. "Institutional Origins and Transformations: The Case of American Community Colleges." in *The New Institutionalism in Organizational Analysis* edited by W. Powell and P. DiMaggio. Chicago: University of Chicago Press.

Brint, Steven G. and Jerome Karabel. 1989. *The diverted dream: community colleges and the promise of educational opportunity in America, 1900-1985*. New York: Oxford University Press.

Brown, David K. 1995. *Degrees of Control: A Sociology of Educational Expansion and Occupational Credentialism*. New York: Teachers College Press.

—. 2001. "The Social Sources of Educational Credentialism: Status Cultures, Labor Markets, and Organizations." *Sociology of Education* 74:19-34.

Bureau of Labor Statistics. 2009. "Occupational Outlook Handbook, 2010-11 Edition." vol. 2010. Washington DC.

Cappelli, Peter. 1997. *Change at work*. New York: Oxford University Press.

Casner-Lotto, Jill, Linda Barrington, and Mary Wright. 2007. "Are They Really Ready to Work?" Conference Board, New York.

Cohen, Arthur M. and Florence B. Brawer. 2003. *The American Community College*. San Francisco: Jossey-Bass.

Cohen, Yinon and Jeffrey Pfeffer. 1986. "Organizational Hiring Standards." *Administrative Science Quarterly* 31:1-24.

Collins, Randall. 1971. "Functional and Conflict Theories of Educational Stratification." *American Sociological Review* 36:1002-1019.

—. 1974. "Where are Educational Requirements for Employment Highest?" *Sociology of Education* 47:419-442.

—. 1979. *The Credential society: an historical sociology of education and stratification.* New York: Academic Press.

—. 2002. "The Dirty Little Secret of Credential Inflation." *The Chronicle of Higher Education* 49:B20.

Cornfield, David and Melinda Kane. 1998. "Sociological Approaches to Employment Research." in *Resaerching the World of Work: Strategies and Methods in Studying Industrial Relations*, edited by K. Whitfield and G. Strauss. Ithaca: Cornell University Press.

Council of Economic Advisers. 2009. "*Preparing the workers of today for the jobs of tomorrow*." Council of Economic Advisers, Washington DC.

Darr, Asaf and Mario Scarselletta. 2002. "Technicians, Clients, and Professional Authority: Structure Interactions and Identity Formation in Technical Work." *New Technology, Work and Employment* 17:61-73.

Deil-Amen, Regina and James E. Rosenbaum. 2004. "Charter Building and Labor Market Contacts in Two-Year Colleges." *Sociology of Education* 77:245.

Dougherty, Kevin. 1994. *The contradictory college: the conflicting origins, impacts, and futures of the community college*. Albany: State University of New York Press.

—. 2003. "The Uneven Distribution of Employee Training by Community College: Description and Explanation." *Annals AAPSS* 586.

Dougherty, Kevin and Marianne Bakia. 1999. "The New Economic Development Role of the Community College." Community College Research Center, Teachers College Columbia University, New York, NY.

Dougherty, Kevin and Barbara Townsend. 2006. "Community College Missions: A Theoretical and Historical Perspective." *New Directions for Community Colleges* 136:5-13.

Farkas, George. 2003. "Cognitive skills and noncognitive traits and behaviors in stratification processes." *Annual Review of Sociology* 29:541.

Ferrer, Ana and W. Craig Riddell. 2001. "Sheepskin Effects and the Returns to Education." in *Empirical Issues in Canadian Education Conference*.

Flores-Lagunes, Alfonso and Audrey Light. 2007. "Interpreting Sheepskin Effects in the Returns to Education." in *Education Research Section*. Princeton: Princeton University.

Gould. 2004. "Expanding Opportunity: Communicating About the Role of Community Colleges." Belden, Russonello & Stewart, Washington DC.

Granovetter, Mark. 1985. "Economic Action and Social Structure: The Problem of Embeddedness." *The American Journal of Sociology* 91:481-510.

—. 1988. "The Sociological and Economic Approaches to Labor Market Analysis: A Social Strucutural View." in *Industries, Firms, and Jobs: Sociological and Economic Approaches*, edited by G. Farkas and P. England. New York: Plenum Press.

Granovetter, Mark S. 1995. *Getting a job : a study of contacts and careers*. Chicago: University of Chicago Press.

Grubb, W. Norton. 1997. "The returns to education in the sub-baccalaureate labor market, 1984-1990." *Economics of Education Review* 16:231-245.

—. 1999. "Learning and Earning in the Middle: The Economic Benefits of Sub-Baccalaureate Education." School of Education, University of California, Berkeley, Berkeley.

—. 2002. "Learning and earning in the middle, part II: state and local studies of pre-baccalaureate education." *Economics of Education Review* 21:401-414.

Hajha, Fatemah and Laurie Salmon. 2005. "Employment Composition: Variation Across States and Metropolitan Areas." *Bureau of Labor Statistics, Bulletin 2575*.

Handel, Michael J. 2003. "Skills mismatch in the labor market." *Annual Review of Sociology* 29:135.

Hanson, Susan and Geraldine Pratt. 1992. "Dynamic Dependencies: A Geographic Investigation of Local Labor Markets." *Economic Geography* 68:373-405.

Hanushek, Eric A. 1981. "Alternative Models of Earnings Determination and Labor Market Structures." *The Journal of Human Resources* 16:238-259.

Harmon, Robert and Keith MacAllum. 2003. "Documented Characteristics of Labor Market-Responsive Community Colleges and a Review of Supporting Literature." U.S. Department of Education, Office of Vocational and Adult Education, Washington DC.

Heckman, James J. and Yona Rubinstein. 2001. "The Importance of Noncognitive Skills: Lessons from the GED Testing Program." *The American Economic Review* 91:145-149.

Heldrich Center for Workforce Development. 2005. "Survey of New Jersey Employers to Assess the Ability of Higher Education to Prepare Students for Employment." Rutgers, The State University of New Jersey, New Brunswick, NJ.

Information Technology Association of America. 2004. "Adding Value…Growing Careers: The Employment Outlook in Today's Increasingly Competitive IT Job Market."

Jenkins, Davis. 2001. "*Building a world-class information technology workforce for the Chicago region.*" Great Cities Institute, Chicago.

Kalleberg, Arne L. 2000. "Nonstandard Employment Relations: Part-Time, Temporary and Contract Work." *Annual Review of Sociology* 26:341-365.

Kalleberg, Arne L., Jeremy Reynolds, and Peter V. Marsden. 2003. "Externalizing employment: flexible staffing arrangements in US organizations." *Social Science Research* 32:525-552.

Kalleberg, Arne L. and Aage B. Sorensen. 1979. "The Sociology of Labor Markets." *Annual Review of Sociology* 5:351-379.

Kolesnikova, Natalia. 2009. "*Community colleges: A route of upward economic mobility.*" Federal Reserve Bank, St. Loius.

Lamont, Michelle and Patricia White. 2009. "Workshop on Interdisciplinary Standards for Systemic Qualitative Research." National Science Foundation, Arlington.

Leigh, Duane E. and Andrew M. Gill. 2007. *Do community colleges respond to local needs?: Evidence from California.* Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research.

Levy, Frank and Richard J. Murnane. 2004. *The new division of labor: how computers are creating the next job market.* Princeton, N.J.: Princeton University Press.

Luker, Kristin. 2008. *Salsa dancing into the social sciences : research in an age of info-glut.* Cambridge, Mass.: Harvard University Press.

Lumina Foundation. 2009. "Goal 2025." Lumina Foundation, Indianapolis.

Marcotte, Dave E., Thomas Bailey, Carey Borkoski, and Greg S. Kienzl. 2005. "The Returns of a Community College Education: Evidence From the National Education Longitudinal Survey." *Educational Evaluation and Policy Analysis* 27:157-175.

Marsden, Peter. 1996. "The Staffing Process." Pp. 133-156 in *Organizations in America: Analyzing Their Structures and Human Resource Practices*, edited by A. Kalleberg, D. Knoke, P. Marsden, and J. Spaeth. Thousand Oaks: Sage Publications.

Maxwell, Joseph Alex. 2005. *Qualitative research design : an interactive approach*. Thousand Oaks, CA: Sage Publications.

Merriam, Sharan B. 1998. *Qualitative research and case study applications in education*. San Francisco: Jossey-Bass Publishers.

Metz, Mary Haywood 1989. "Real World: A Universal Drama Amid Disparate Experience." *Politics of Education Association Yearbook 1989*:75-91.

Meyer, John W. 1977. "The Effects of Education as an Institution." *The American Journal of Sociology* 83:55-77.

Meyer, John W., Francisco Ramirez, David John Frank, and Evan Schoffer. 2007. "Higher Education as an Institution." in *Sociology of higher education: contributions and their contexts*, edited by P. J. Gumport. Baltimore: The Johns Hopkins University Press.

Miles, Matthew and A. Michael Huberman. 1994. *Qualitative Data Analysis*. Thousand Oaks: SAGE Publications.

Mincer, Jacob. 1958. "Investment in Human Capital and Personal Income Distribution." *The Journal of Political Economy* 66:281-302.

Murnane, Richard J., John B. Willett, and Frank Levy. 1995. "The Growing Importance of Cognitive Skills in Wage Determination." *The Review of Economics and Statistics* 77:251-266.

National Workforce Center for Emerging Technologies. 2008. "*Staying competitive by strengthening connections: Factors affecting employer perceptions of community and technical college IT graduates*." Bellevue College, Bellevue, WA.

Natriello, Gary. 1989. "What Do Employers Want in Entry-Level Workers? An Assessment of the Evidence." National Center on Education and Employment, Teachers College, Columbia University, New York, NY.

Pascarella, Ernest T. and Patrick T. Terenzini. 2005. *How college affects students :a third decade of research*. San Francisco: Jossey-Bass Publishers.

Peck, Jamie. 1996. *Work-place: the social regulation of labor markets*. New York: Guilford Press.

Penoyer-Kulin, Linda Anne. 1991. "Credentialism and organization." Ph.D. Thesis, York University (Canada).

Pincus, F. 1980. "The False Promise of Community College: Class Conflict and Vocational Education." *Harvard Educational Review* 50:332-356.

Riley, John G. 1976. "Information, Screening and Human Capital." *The American Economic Review* 66:254-260.

—. 1979. "Testing the Educational Screening Hypothesis." *The Journal of Political Economy* 87:S227-S252.

Rosenbaum, James E., Regina Deil-Amen, and Ann E. Person. 2006. *After Admission: From College Access to College Success*. New York: Russell Sage Foundation.

Rosenfeld, Rachel. 1992. "Job Mobility and Career Processes." *Annual Review of Sociology* 18:39-61.

Rubery, Jill. 2005. "Labor Markets and Flexibility." Pp. 31-51 in *Work and Organization*, edited by S. Ackroyd, R. Batt, P. Thompson, and P. Tolbert. New York: Oxford University Press.

Rubin, Herbert J. and Irene Rubin. 2005. *Qualitative interviewing : the art of hearing data*. Thousand Oaks, Calif.: Sage Publications.

Sakamoto, Arthur and Meichu D. Chen. 1991. "Further Evidence on Returns to Schooling by Establishment Size." *American Sociological Review* 56:765-771.

Saxenian, AnnaLee. 1994. *Regional advantage: culture and competition in Silicon Valley and Route 128*. Cambridge, Mass.: Harvard University Press.

Schultz, Theodore W. 1961. "Investment in Human Capital." *The American Economic Review* 51:1-17.

Scott, Richard W. 2003. *Organizations: rational, natural, and open systems*. Upper Saddle River, N.J.: Prentice Hall.

—. 2008. *Institutions and Organizations: Ideas and Interests*. Los Angeles: Sage Publications.

Scott, Richard W. and John W. Meyer. 1991. "The Organization of Societal Sectors: Propositions and Early Evidence." Pp. 108-140 in *The New Institutionalism in Organizaitonal Analysis*, edited by W. Powell and P. DiMaggio. Chicago: University of Chicago Press.

Small, Mario. 2009. "Lost in Translation: How Not to Make Qualitative Work More Scientific." in *Workshop on Interdisciplinary Standards for Systemic Qualitative Research*, edited by M. Lamont and P. White. Arlington: National Science Foundation.

Smelser, Neil and Richard Swedberg. 2005. "Introducing Economic Sociology." in *The Handbook of Economic Sociology*, edited by N. Smelser and R. Swedberg. Princeton: Princeton University Press.

Spence, Michael. 1973. "Job Market Signaling." *The Quarterly Journal of Economics* 87:355-374.

Stiglitz, Joseph E. 1975. "The Theory of "Screening," Education, and the Distribution of Income." *The American Economic Review* 65:283-300.

Stolzenberg, Ross M. 1978. "Bringing the Boss Back In: Employer Size, Employee Schooling, and Socioeconomic Achievement." *American Sociological Review* 43:813-828.

The Saflund Institute. 2007. "BATEC Information Technology Workforce Skills Study." The Saflund Institute, Kent.

US Census. 2006. "American Community Survey, Selected Social Characteristics in the United States."

US Department of Education. 2009. "Changes in Postsecondary Awards Below the Bachelor's Degree: 1997 to 2007." National Center for Education Statistics, Washington DC.

Van Noy, Michelle and Madeline Weiss. 2010. "The Role of Community College Education in the Employment of Information Technology Workers in Washington

State." Community College Research Center, Teachers College, Columbia University, New York.

Vey, Jennifer S. and Alec Friedhoff. 2010. "Great Lakes Monitor: Tracking Economic Recession and Recovery in the 21 Largest Metropolitan Areas of the Great Lakes Region." The Brookings Institution, Washington DC.

Weiss, Andrew. 1995. "Human Capital vs. Signalling Explanations of Wages." *The Journal of Economic Perspectives* 9:133-154.

Wial, Howard and Alec Friedhoff. 2010. "MetroMonitor: Tracking Economic Recession and Recovery in America's 100 Largest Metropolitan Areas." The Brookings Institution, Washington DC.

Yin, Robert K. 2003. *Case study research : design and methods*. Thousand Oaks, Calif.: Sage Publications.

Zukin, Sharon and Paul DiMaggio. 1990. "Introduction." in *Structures of Capital: the social organization of the economy*, edited by S. Zukin and P. DiMaggio. New York: Cambridge University Press.

APPENDIX A: EMPLOYER RECRUITMENT TOOLS

CCRC COMMUNITY COLLEGE RESEARCH CENTER

Institute on Education and the Economy / Teachers College, Columbia University

January 6, 2009

Dear Colleague:

The National Science Foundation (NSF) and Columbia University's Community College Research Center (CCRC) invite you to participate in a study of the Information Technology (IT) workforce. We are partnering with the National Workforce Center for Emerging Technologies (NWCET) at Bellevue Community College to better understand employer needs for entry-level Information Technology (IT) workers in computer and network support. The goal of this study is to help colleges improve their programs to better meet the challenges of current and future IT workforces. We would like to get your opinions and attitudes about issues related to effective IT education and hiring practices. Given the current difficult economic times, your input is particularly important to help plan for the future.

To capture feedback from the region's leading organizations that employ IT professionals, we will be conducting one-on-one interviews with Human Resources Managers and IT Hiring Managers who have experience hiring entry-level IT workers for computer support and network technician positions. We invite you and others in your organization to take part in this important study. Your participation will provide important guidance to colleges in preparing students for the workforce.

Sincerely,

Thomas Bailey
Director, Community College Research Center

COMMUNITY COLLEGE RESEARCH CENTER

Institute on Education and the Economy / Teachers College, Columbia University

Research on Hiring Requirements for Entry-Level Information Technology Jobs

The Community College Research Center (CCRC) is partnering with the National Workforce Center for Emerging Technologies (NWCET) on a three-year project to examine the hiring process for entry-level information technology (IT) jobs and the role of community college IT programs. CCRC researchers will assess industry demand for community college IT degree programs based on employers' hiring requirements and their perceptions of community college programs and graduates.

The study focuses on entry-level IT jobs across a range of employers in two labor markets—Seattle and Detroit. The research examines the hiring requirements for these jobs including skills, education, experience, and industry certifications. The two labor markets provide a contrast in their industry focus with the IT industry in Seattle and the automotive industry in Detroit. The employers represent a range of organizations including large and small, private and public sector, and IT and IT-enabled, as well as temporary placement firms. Interviews and focus groups with employers seek to understand their hiring needs for entry-level IT workers. A review of on-line job postings also identifies the hiring requirements for entry-level IT jobs. Interviews with community college faculty and staff examine IT programs and their relationships with employers.

This project is funded by the National Science Foundation's Advanced Technological Education program. These research activities are being conducted as part of a larger project to develop connections between industry and community college faculty and students ("Stem-to-Stern: An Education to Industry Research, Action, and Change Project to Develop Long-term Employer-Education Partnerships"). This research seeks to inform community college efforts to work with employers, culminating in conferences and reports targeted at both community college practitioners and employers. A final report on the research findings will be available in 2009.

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RECRUITMENT EMAIL

I am writing to follow up on my recent call about the National Science Foundation/ Columbia University study of entry-level IT workers. To provide you with more information on the study, attached is a letter of invitation and a short description of the study goals.

We hope you will consider sharing your perspectives through a one-on-one interview in early 2009. Your perspectives will help contribute to the improvement of IT education and help build a stronger base of technical talent to ensure the strength of our region in the global economy as we move ahead in these difficult economic times.

I will be in touch again with you in the next few days to discuss possible times for an interview. In the meantime, please feel free to contact me at XXXXX.

Thank you in advance for your support of this important research.

Sincerely,

APPENDIX B: DATA COLLECTION INSTRUMENTS

INTERVIEW GUIDE FOR EMPLOYERS

1.   Background

- Can you tell me a little about yourself in terms of your work experience and
education?
- Tenure at current job, previous jobs, education
- Any professional associations related to IT/HR

- [If not clear] Can you tell me a little about your organization?
- Product and customers
- For large orgs, number of locations, their location, and similarity

- How many employees does your organization have? What is their typical
education?

2. IT Operations

- What is the role of IT in your organization?
    i. Degree of reliance on IT infrastructure
    ii. Number and type of entry-level IT jobs
    iii. Organization of IT network and computer support functions & why
    iv. Changes over time?

- What are the roles of entry-level IT computer support and network
technicians?
    i. Common tasks & variation based on skills
    ii. Extent of work under supervision
    iii. Educational backgrounds of current IT technician staff
    iv. Changes over time?

- What is the typical career path for an IT technician in your organization?
    i. Degree of opportunities to move up within the organization
    ii. Length of tenure in these positions, reasons to leave, where they go
    iii. Role of education in promotion process

- How are IT technicians viewed in your organization?

3. Hiring Process

- What methods and sources do you use to recruit entry-level IT
technicians? Which do you find to be the most successful?
    i. Particular schools, temporary placement agencies, postings,
networking

- Are there any organization-wide practices or philosophies that guide your hiring?

- What are the roles of IT managers and HR reps in the hiring process?

- How similar is your firm to other firms in the area in how you hire for these jobs?

4. *Hiring Preferences and Education*

- When recruiting for entry-level IT technicians, what qualifications do you seek?
- Most difficult to find

- Is there a minimum level of education you prefer or require? If so, why?
    i. High school, Some college, Associate degree, Bachelor degree

- What does education tell you about an applicant for an entry-level IT position?
    i. High school degree, Associate degree, Bachelor degree, Some college
    ii. Associate degree – young and new to IT?
    iii. Associate degree – older and changing career?
    iv. Associate degree – young and pursuing a BA?

- What qualities would you expect to find in an associate degree graduate?

- Have you had any experiences with associate degree graduates in hiring for entry-level IT positions? If so, please describe.

- What roles do you think are best suited for an associate degree graduate?

- To what extent do you use industry certifications in hiring and promotions?

- What do industry certifications tell you about an applicant for an entry-level IT position?

5. *Awareness of Community College(s)*

- When you think of community colleges, in general, what are your impressions?

- How do you think community colleges compare to other higher education institutions?

        i. For-profits, Four-year universities

- What do you know about local community college? Their programs in IT?

- What experiences have you had with local community colleges?
    - ii. Posting jobs/recruiting students
    - iii. Customized training
    - iv. Volunteering, i.e. advisory board, mentoring students
    - v. Personal experience

[Note: ASK FOR FORMAL JOB DESCRIPTIONS]

APPENDIX C: CHARACTERISTICS OF ORGANIZATIONS IN SAMPLE

Organization Type	Industry	HR Hiring Manager	IT Hiring Manager
Detroit:			
Large	Construction		X
Large	Manufacturing	X	
Large	Manufacturing		X
Large	Entertainment		X
Large	Business consulting		X
Large	Manufacturing	X	X
Large	Marketing	X	X
Public	Higher education		X
Public	Government		X (2)
Public	Government	X	
Public	Military		X
Public	Higher education	X	
Small	Manufacturing		X
Small	Architecture/Engineering	X	
Small	IT	X	
Small	Credit Union		X (2)
Small	Engineering	X	X
Small	Financial	X	X
IT Support	IT Support		X
IT Support	IT Support		X
IT Support	IT Support		X (2)
IT Support	IT Support		X
IT Support	IT Support	X (2)	X
Temp	Temp	X	
Temp	Temp	X	
Temp	Temp	X (2)	
Temp	Temp	X	
Seattle:			
Large	Manufacturing		X (3)
Large	Research		X
Large	Software		X
Large	Manufacturing		X (2)
Large	Utility	X	X
Large	Hospital	X	
Large	Coffee Chain		X
Large	Financial, Insurance		X (2)
Public	Government		X (2)
Public	Government		X
Public	Utility		X

Organization Type	Industry	HR Hiring Manager	IT Hiring Manager
Public	Higher Education		X
Small	IT		X
Small	Membership		X
Small	IT		X (2)
Small	Media		X
Small	Accounting	X	X
Small	IT		X
Small	Manufacturing		X
Small	Architecture	X	X
Small	IT	X	
Small	Public Health	X	
Small	IT	X	
Small	IT/Library	X	X
Small	Credit Union		X
IT Support	IT Support		X
IT Support	IT Support		X
IT Support	IT Support		X
Temp	Temp		X
Temp	Temp		X
Temp	Temp	X (2)	

APPENDIX D: CODEBOOK OF CREDENTIAL MEANINGS

CODE	BRIEF DESCRIPTION AND WHEN TO USE	WHEN NOT TO USE (boundaries between elements of this code and elements of other codes)	EXAMPLE (a verbatim example of the code from the interviews)
Ability to learn	Ability to learn new skills or knowledge--as a quality one develops via education. May apply to the ability to learn as well as interest or motivation to learn and continue learning.	Does not apply to qualities associated with one's knowledge; it is closely related but distinct from thinking skills, which has to do with problem solving which relates more to the use of one's current knowledge.	Anybody who's committed to a couple of years of serious education I think should have a way of showing you that they can learn at a more accelerated pace. /// here are very few 4-year degrees that really train people to do the job they are trained for, but they show pointers that people know how to educate themselves, which I tell all the young people, "Go to college and learn how to educate yourself. And the day you get out of college you start educating yourself."
Thinking skills, problem solving	Ability to think effectively; Includes problem solving, analytic thinking, critical thinking, logic, higher end thinking, intelligence; Applies to qualities about the person in how they think; this relates to their thinking/problems solving process.	Does not apply to qualities like how they learn, or the kinds of knowledge and skills they possess.	they probably have kind of brain – something. Or, at least they exercised their brain to some capacity in order to achieve that. /// When I got to be a junior and senior, or when I was in grad school, it was "Go find out about this, and think about it, and figure it out, and then write a paper about it" or "come and give a speech about it." So that ability to think and reason and research, I think, in my educational experience, really gets exercised in your junior and senior years. //// It's the problem solving. It doesn't mean that you're any better. It's just, it's almost like being a lawyer. They don't really teach you the law; they teach you how to think. So that's the one thing I'm looking at. //// An ability to problem solve and understand how to problem solve and how to research and come up with good solutions, and how to deal with customers.

CODE	BRIEF DESCRIPTION AND WHEN TO USE	WHEN NOT TO USE (boundaries between elements of this code and elements of other codes)	EXAMPLE (a verbatim example of the code from the interviews)
Business knowledge	Understanding of the context of a business and/or how IT fits in. Applies to the discussion of business and IT in relationship to the business, end user needs	Does not apply to technical IT tasks but rather the broader context of the business.	Somewhere down the road you learn something you didn't think you'd learn, and it comes back to help you a few years down the road. And maybe my bias is because I was an undergrad in economics and I have a community college degree, and I have more the business route…And I've heard this said, and I do believe it now, as time goes on: that the hardcore technical stuff has become somewhat of a commodity. And it costs money to have somebody come out that knows a ton about Microsoft Exchange, and do some…But to know where to go and how to set up, there's a lot of companies and vendors that could do that for us. If it's talking to this user and knowing how to best set up Exchange and Outlook to meet our business needs, I may sound like a cliché, but that is the harder thing to get. /// if you don't have the degree, you just don't have the business sense, unless you've had the chance to be in front of the business on a consistent basis. And how are you going to do that if you didn't go…?
Technical skills and knowledge	Technical knowledge of IT; Includes knows latest technology, has a foundation of technical skills	Less about ability to do general skills and orientations (like thinking or ability to learn), but more specifically about knowledge of technical matters but not directly applied.	I would expect them probably to be up on some more of the latest technology. //// I think the 2-year degree gives them a good base technically to fall into be able to do those roles. //// You can tell them go find this and they will. To me it means a lot of the basic training's been done for you. So you can take them and specialize them from there. /// Someone who with 2 years gaining experience in any sort of field, you're going to really understand the general knowledge of things /// I think it shows that at least there's a foundation there, and they begin to build some of that on top of that once they start here. /// There's a lot of basic knowledge that you're supposed to have already before you come into this position, because they're going to expound on that basic knowledge that you have to get you into specialization. //// if someone has received an IT degree and they have a bachelor's, they come in usually knowing a lot about what they'll be supporting when it comes to like shrink-wrap software, Microsoft products or whatever. Maybe they've used them in school,

CODE	BRIEF DESCRIPTION AND WHEN TO USE	WHEN NOT TO USE (boundaries between elements of this code and elements of other codes)	EXAMPLE (a verbatim example of the code from the interviews)
Hands-on skill	IT skills or knowledge that can be used immediately on the job--either basic skills in IT or "real world", hands-on knowledge of IT.	Not as directly related to knowledge as much as the ability to complete IT tasks.	as long as they've at least had the IT savviness and they've done at least a little, like 6 months to a year of hands-on work, that's really what they're looking for in IT is that hands-on work // Basic knowledges 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 4-years bachelor's, in different ways. //// Probably come out with a little more hands on skills versus the focus of the people that I've seen go through IT programs in a four year school they don't necessary come out with program language skills, but they come out with the ability to understand the logic behind the programming languages, which is great if you're learning new language skills. /// //// 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.
Commitment to Career	Shows person is committed to a career in IT. Commitment related to work and career in IT; the person is serious about their career or work	Does not include commitment as a more general, which falls into completing something.	I think that at least with a 2-year degree, especially in IT, you're obviously going to have somebody where this is what they want to do, it's their chosen path /// it's a matter of wanting to learn more, showing that the person is serious about his or her career. /// it tells you that they are career-oriented and they're working towards trying to establish their careers. //// It shows the interest in whatever area it is that they're pursuing. //// it tells me in the beginning that he's been interested in getting into the career, into the field. He has done his diligence to try to get some experience so that he could have a good job. /// the degree itself is… At the beginning, it's very important, if nothing else, to prove that you're serious about what you're doing, that you went and got the rigor of certain programs. //// but when someone actually has some intensive courses taken and

CODE	BRIEF DESCRIPTION AND WHEN TO USE	WHEN NOT TO USE (boundaries between elements of this code and elements of other codes)	EXAMPLE (a verbatim example of the code from the interviews)
			specific things, it tells you that that person has a high interest. You can tell this person is interested in this matter, in this type of topic. And perhaps maybe that person is looking for this type of career path. //// Just that they've made a commitment to 4 years of training on the process and theory, and so they've made a commitment. They've made a stronger commitment that this is the right field for them
Discipline, completed something	Shows a person completed something; shows hard work and follow through. Completed something, viewed as an achievement	Applies to a behavior or an act of finishing schooling, rather than an attitude demonstrated by schooling, different from motivation.	It shows that you completed something. //// I think the positives are that someone started something, and they completed it. It gives them a good start into a higher education. A lot of the fields now, people want graduate studies, so it depends on what fields they are in, but it shows a discipline, and it shows that they've, again, completed something. /// I like anybody that finishes something that they started. /// What I found is that if you've gone to and gotten through your two year education or your four year education, to me it says that you've completed something, that you know how to get through that problem. And so that's important to me, you've been able to solve the nut of education. /// Also demonstrates that you can set a goal and work toward it and achieve it. /// They had to have a bachelor's degree because it shows that you've gone through a process to achieve a goal. /// Nothing degree-specific, but the fact that you've worked hard and were able to accomplish a degree says a ton. //// Well, it tells me they have perseverance to stick through a program and get a degree. And there are so many people who start college and they never finish. It tells me something about their lack of focus and their lack of perseverance. They get distracted more easily, they don't buckle down and finish a goal, and it's tough when you're in your early 20s to be focused, and buckle down, trust me I know.

CODE	BRIEF DESCRIPTION AND WHEN TO USE	WHEN NOT TO USE (boundaries between elements of this code and elements of other codes)	EXAMPLE (a verbatim example of the code from the interviews)
Confidence	Belief in one's abilities and ability to lead and manage others.		I mean, the 4-year degree I think says more about the person, and that person should have a higher degree of confidence //// There's just generally more confidence in a four-year degree individual than in a two-year degree individual.
Follow directions	Follows procedures to complete tasks.		I was in college and a lot of it is just a bunch of bull. It's being able to manipulate through the process that someone said, do it, and get past it. And there's a lot of accomplishment in doing that. And it shows you to follow directions, it shows sometimes you can participate in something that you don't really believe in, but you get through it, and you get past it, and you move on. //// I need someone who can follow instructions. Four year degree person has understood very clearly if they have a 3.0 or above, 4.0, sure, I think. They learn then the coursework starts in the first couple of days usually but not always the professor tells you exactly what you got to do to get an A. it's crystal clear. Now you can go off on your own little tangent and not follow those rules and be your own independent thinker, but a four year degree person learns to follow the rules.
Maturity	Knowledge gained from experience and age		Like I said: now you're mature, now you're advanced /// So somebody who has an AA and has received that A tells me that they've matured some /// I prefer it mostly from the maturity and the business knowledge that that provides them, typically.
Eager to prove self	Attitude of grads towards work--desire to have the chance to prove oneself; willingness to work without a lot of expectations or sense of entitlement; eager to have a chance to prove oneself, more "hungry"	does not include general motivation or desire to work.	they also typically have gotten that degree because they've realized that that degree, those are the keys to the candy jar. Having that degree opens up jobs to them that they didn't have access to before. So again, rather than coming out with a 4-year degree that "Ok, I've got my degree. Now, what are you going to offer me?" it's more that "I have my degree now, and I have this to offer you." It's the reverse mentality. /// That's what I look for in a lot of these people – they're hungry, right? They want to get in, they want to do, they want to prove themselves, and then can, because they want to move on. /// I feel like they're more hungry, you know what I mean? They know they're coming out of community college. They're really smart and can get what it is that needs to be done, they're more

CODE	BRIEF DESCRIPTION AND WHEN TO USE	WHEN NOT TO USE (boundaries between elements of this code and elements of other codes)	EXAMPLE (a verbatim example of the code from the interviews)
			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. Where other people who already coming with a background or coming with a, MIT or wherever, they don't feel like they have to really prove themselves, you know what I mean?
Motivation	Shows personal trait of motivation, ambition, drive; Applies to attitudes; discussion of motivation, ambition, drive as qualities in a person's attitude or outlook; ability to seek out challenges and work independently	Related to but distinct from qualities like discipline and follow through which have more to do with actions than attitudes	I think a big part of it is motivation to do it. That I have somebody who's got some motivation, who's self-motivated. //// So I've had this conversation with people, internally, and the whole thought behind someone actually having a degree is sort of the motivation and the ambition to take it one [step] further and get a degree. //// That that person went on to achieve that, they went on, they went for the brass ring. That they're motivated, that their motivation just doesn't stop.
Well roundedness	Shows the person is knowledgeable in many areas, not too focused; discussion of education as being well-rounded, implies study and knowledge of a variety of subject areas.	Distinct from business knowledge and technical skill which have to do with particular kinds of knowledge; this is about broader knowledge	An associates, I think that broad brush that they learned, whatever they learned in those 60 credits, whatever they took, getting back to the finance, someone with a business sense, some technical knowledge. /// Yeah, because community colleges will require, like I said when I did, more than just IT. I had to take accounting. I had to take history. You get a bit more rounded education. //// I think it would tell me that maybe this person isn't narrowly focused as maybe somebody else in a community who is only taking certain classes. But that's not necessarily a bad thing. Maybe this person just has a broader world view.
Communication skills	Communication including oral and written skills; discussion of communicating, speaking,	Does not apply to technical skills or business skills; does not deal with attitudes	And 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. So I think that in and of itself, as well, aside from whatever they majored in, would be crucial to us. //// Well, I would expect to

CODE	BRIEF DESCRIPTION AND WHEN TO USE	WHEN NOT TO USE (boundaries between elements of this code and elements of other codes)	EXAMPLE (a verbatim example of the code from the interviews)
	writing; conveying a message to non-IT staff, etc.		find, they know how to articulate things: write, answer emails, the simple stuff – talk to a customer professionally. //// The other one actually, particularly the technicians, the ability to write, to speak through writing, whether that's just an e-mail, it's mind boggling bad, the communication skills of a lot of people and typically if people have gone through college. /// Variety of people, that's the part that allows them to work with a lot of different people. They're not "techno geeks," they go in and all day…their computer and that's it. //// They've probably taken all the writing classes, and at least they'll be able to work on the computer, they're able to clearly and concisely write. Just the skills that you gain going through college, whether it be in psychology or whatever degree field, whatever path you have taken. /// They've had to go through writing, and doing all those things that we require here. /// Well I think to me, what we're, there are 2 different areas I want to first say to the education side. I think whether, regardless of what your background was, you're right, it taught, say your basic communication skills.
Fit in organizational culture	When education helps fit into the organization; applies to the discussion of organizational fit and culture; the need to have degree to relate to others in organization.	Deals more with organizational culture, than communication skills which are seen as general skills needed to do the work; this is about fitting in.	We're a big – engineers and architects pretty much work here, and that's 4-year degrees and up. So we're a very professional environment. So somebody who maybe doesn't have a 4-year degree yet, but they're trying to get there. /// It tends to demonstrate that they're going to typically fit better in this kind of environment where 95% of the people that work here have a college degree – or at least a bachelor's degree or higher. So, having some of them have that experience and exposure to that, and if they have that kind of degree, then generally it helps them better fit into the overall environment here as well as on-going career growth. //// And what I would look for is, in fitting in with the [COMPANY NAME] culture here, looking for someone who either has a degree or their pursuing. That's just part of our culture here.

CODE	BRIEF DESCRIPTION AND WHEN TO USE	WHEN NOT TO USE (boundaries between elements of this code and elements of other codes)	EXAMPLE (a verbatim example of the code from the interviews)
Entitlement	An attitude being owed something by employers; applies to attitudes towards work and employers—i.e. deserving a certain job or a certain salary		The associate degree people I have found, and it gets back to what we found at [ORGANIZATION] again, don't have the entitlement mentality that a lot of the 4-year degree people. //// I don't think - bachelor's degrees are certainly teaching to be, to have those – the graduates from 4-years don't necessarily come down thinking that "I'm going to take phone calls." They certainly don't. They certainly expect a desk job. So, their expectation is a little bit different here. /// well I can say that the individuals I'm seeing coming directly out of a four year school have a very large entitlement issue. That has been a huge one.
Stigma, lack of ability, skill or initiative	Qualities that are perceived to be lacking in associate degree holders, including ability, initiative or skill; discussion of qualities in associate degree holders when discussed as lesser than bachelor's.	Distinct from specific qualities associated with associate degree or bachelor's degree holders on their own.	The first thing it tells me, and perhaps I'm telling myself wrong, is that they couldn't get in a four year degree place. //// Now if you're going to "college," if you're really going to college, you go to a four-year school, because that's the definition of college. Community college was, like, we couldn't quite cut it in high school. /// maybe what it tells…is that a two year degree is maybe someone who may not have been as academically inclined than someone who went to four years. //// why did you only go for two years? And you just wanted 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. //// not a lot of new ideas. Tend to be, can be very good at making and maintaining something and knowing how to fix something, but you won't' see them come and offer me, hey [NAME] have you ever thought about designing something that would do this? //// They're a little bit immature, the personality, because they are young. And some people get community college degree really late and in a service situation, they just don't have that creativity, flexibility. /// 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.

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Overqualified	Their education makes them overqualified for the job-- deals with bachelor's level; too much education, they are overqualified, and will not be happy in the jobs		People walk in with four year degrees or more, I've seen more, sometimes I wonder why they're applying for the job, they're overqualified. And I don't think they'll be happy here. I don't have a job I can keep them happy with long term. They're better than the job I'm hiring for. They're not going to be happy. /// And the 4-year degrees I don't think, that's almost, for me it's a red flag, too much education, because we're not writing software here, we're fixing problems and helping other people, and installing stuff and configuring it. And it's generic stuff at the end of the day as far as our IT operations.
Lack of financial resources	Got associate degree because they are lacking financial resources		Some people for personal situations, economic reasons, aren't able to get a bachelor's degree. //// I don't think I really took that into consideration, because the reality is that people are in different situations. Some people can afford to do it, some can't. //// Because a lot of times it's economics, people just flat out can't afford to go to a four year school, even though they might be very bright. //// Some people can't afford to go to a 4-year school, or there's some other circumstance where they can't do it, so I'm going to discount somebody who otherwise seems capable, just because they haven't gone through a 4-year program.

APPENDIX E: CODEBOOK OF QUALITIES SOUGHT IN TECHNICIANS

CODE NAME	BRIEF DESCRIPTION AND WHEN TO USE	WHEN NOT TO USE (boundaries between elements of this code and elements of other codes)	EXAMPLE (a verbatim example of the code from the interviews)
Accountability	Takes responsibility for work results		Hard-core skills that fit that position, but then someone who could display accountability for results, that was goal-oriented, understands the company, understands the position, has communication skills.
Communication skills	Ability to convey information via speaking and writing, has to do with the process of effective communication	Does not include an understanding of the broader business context or individuals' setting	It's more the customer-service oriented, the great verbal communication, and able to take technical jargon and explain it to someone who may not have it, not get the glazed over eyes. // What I look for is someone who's got a good communication skill set, because this is regardless, really of anybody I hire: Can they communicate? Can they write a cohesive, I actually ask for writing samples – can they write in a cohesive email? // As an entry-level person, good communication. If they're able to talk to other users and draw things out, and not just be order-takers, because sometimes it's difficult to get users to tell you… "It's just not working!" And they don't understand, and really, being gentle with getting stuff out. People, just understanding that they don't always know, so you just have to probe and ask questions, and talk with people and get a good a feel for what's going on.
Customer service, able to work with users	Ability to effectively work with end users of the IT system and understand their concerns	More than communication because it includes understanding and empathy	Also customer service skills – they have to be able to speak to customers, deal with customers, because there is always going to be somebody who's having a bad day. You're going to have to deal with it. // You've got to know how to treat customers right, because we are at the end of the day, IT specifically, is a service organization that provides quality service to our end users, our customers. // we focus on people skills, situation skills. We don't want people to get hot around the collars – sometimes technical people get upset with the people because they're not at their technical level and they're not getting it. // They have to realize and be realistic about the fact that if they're working in an administrative or help systems admin or a helpdesk position, everybody that calls them has a problem. And so that's what I say when I do these mock interviews with these kids, I'll say to them, "We not only need to focus on your hard skills, but your soft skills to, or you're going to get thrown to the wolves. Because everyone's going to be calling you – 'My computer locked up and I can't get on the internet!' and how are you going to handle that? Take me through the steps that you're going to handle that." And they'll start out – a man I've been talking about,

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			"Well, I'm going to go into the server and reboot…" And I'm like "No, the first thing you've got to do…" So it's making them aware of they really are customer service. // they're working with every employee here. They're touching every single person. So they have to be very personable, they have to have good strong customer service skills. // Somebody who's highly techie, that doesn't know how to talk to people, isn't going to be successful. A lot of what these two roles do is desktop, desk site support. And you need to be able to make small talk and to ask the right questions of the user to get to the problem. // But we're also looking for that service culture. What's your attitude? How are you on the phone?
Follow directions	Follows procedures for troubleshooting and documenting work		the entry level the way they described it to me is they need someone that could even just read the documentation, understand it and be able to follow the steps in order to do it. // That person would have to have the ability to follow instructions, do things the same way every day.... // somebody who is detail-oriented, because one of the biggest problems that we had here for a while was our ticket tracking system is not really an IT ticket logging system.
Personal interest in technology	Keeping up with technology on their own because they are interested in it.	Has to do with their orientation to IT (i.e. are they genuinely into it?) as well as whether they spend their personal time keeping up with/playing with IT, rather than their general orientation towards learning.	A lot of times we look for things that show that they're passionate and excited about technology. // I want them to be able to grow and be creative and have a passion for it, and not just "Well, I'm just looking for a job, something to pay the bills." // It was like "Really, he was really passionate about…" He was like "I really love technology, I want to do this, I want to do this." I was like "Wow, ok. // But we really look for people who – we joke and say somebody that has been living in their parent's basement, or they have their own system set up where they're running servers, or they're hosting somebody's website. And they can do these things because the technology is free or relatively inexpensive. So this is something that someone can do on their own, and they have that natural curiosity and that drive to do those things and to want to fix those problems. // One of them, which is really the most important, is I try to answer the question, "Does this person have a big curiosity for technology?" // I found that the most qualified people are engaged in computing in their off time by choice. // I ask people if they have a network at home, if they play with stuff at home. Do they have wireless network at home? Do they have more than one computer? // They're huge technology enthusiasts, self-taught.

CODE NAME	BRIEF DESCRIPTION AND WHEN TO USE	WHEN NOT TO USE (boundaries between elements of this code and elements of other codes)	EXAMPLE (a verbatim example of the code from the interviews)
Ability to learn	Aptitude and attitude to acquire new skills and take on new tasks as well as interest in continued learning	Has to do with their general attitude and openness to learning and change.	A lot of it is about wearing a lot of different hats, so it's that eagerness to learn and to grow and to constantly take on more responsibilities. // It's basically, attitude: are they willing to learn? // And that's where, when I interview, I tell people, "This is what I'm really looking for. I don't need an expert in this. If you are, great, but you are going to be required to do other things. I will give you the flexibility to do what you're best at, but there may be a time where 'Hey, you need to help this guy out.' You need to learn something new." // I guess just someone who takes pride in their work and who wants to continuously improve. Not someone who's stagnant. So the point of me saying I'm looking with someone with longevity who's been in a position for a long time, if they had been in the position for a long time, I wanted to press them to say "What did you accomplish in that role? How did you progress? How did you take your team to the next step?" So someone who stays on top of technology and who wants to do that, because I think we need to do that here, and we do do that here. // If someone coachable? Are they open to input? Do they resist change? How do they respond to stress? Really, soft skills and things like that. // The ability to change factor is very important. How do people deal and adapt to change? Little things like that are extremely important because if you're somebody who is in the box and can't come out of it, you're going to get to a certain point and you're going to hit a wall.
Business knowledge	Understanding of how IT fits into the business or the specific industry	Does not include IT specific knowledge but rather typically pertains to non-IT settings	I think we have put a lot of focus on, I mentioned this before, on knowing the financial services industry. And that's typically somebody that's worked here. // It's recognizing that when you step INT01o a business environment, particular a regulated financial services business environment, there are rules you have follow, so you can't just create. // One of my biggest frustrations with IT and IT hiring is sometimes you'll hire people that are incredible technicians that maybe just got out of college or have these amazing skills at supporting servers, whatever that piece of technology is, but they have no concept of what it is that server does for the end user. // you don't have to understand architecture, but a broader business education that it's not about the technology, it's abbot how the technology feeds whatever industry it is. And we talk a lot here about how you can have seamless technology that you don't really realize it's there. And that's the golden moment. We have video conferencing and if you can sit down in the room, push two buttons, and

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			then all of a sudden you're having a conversation and you don't really think about the fact that they're in New York, you're just able to have that conversation. All of a sudden, technology is not only enabling you to do that, it's enabling you to do that without any interference or any interaction from you, and that's important. Because that technology isn't the job, architecture's the job.
Jack of all trades	Possess many skills; ability to take on different roles		So, trying to make people maybe more fully functional, Jack of all trades type of thing // And that's one of the hardest challenges, to find somebody like that, that can do everything.
Loyalty	Want to stay with employer for long term		you have to find that happy medium of someone who's going to stay in that position and not just looking for a leg up. // So what I was looking for, because we are such a small organization, someone who wanted to stay, someone who'd make a lasting impression, someone who could really help fill in the void that we had with the predecessor not being here in that position // ideally we'd like to hire someone who could take the job when they start and stay on for 2 years, because when you retain somebody, they just become a much more integral part of the organization. They become much more efficient. // We're looking for people who are looking to grow and stay within the company and organization.
Motivation	Personal quality of focus and ability to work on own to achieve goals		you've got to be able to hit the ground running and do everything you need to do without someone standing over you or being right there to help you. // There's a high level of motivation that I look for. // What's more important to me is the fact that he or she has shown initiative //
Thinking skills, problem solving	Ability to logically think and solve problems; relates to thinking process and troubleshooting abilities, analytical thinking, critical thinking		it's that train of thought, they can figure things out and they can just look at it and know what to do. // Are they able to troubleshoot the problems that we've given them? // We try to ask questions about projects you've worked on, and things you're successful at, trying to just get their general thought process across; how would they resolve a problem? // We want to have logic in people so the more people we get who have some semblance of that logic already. They gel onto us so much better, they fit so much better. // what are your research capabilities? And are you able to connect the dots? // you've got to be able to handle calls, you got to be able to appropriately troubleshoot, and think with a logical thought process and understand the big picture of how things work. // maybe asking them a number of questions trying to determine how might they troubleshoot a situation, or go about looking up information? // maintain a very

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			good attitude around problem solving // Troubleshooting is probably the most important thing. If they don't have good troubleshooting skills then they're not going to go anywhere. They're not going to be able to get through the helpdesk tickets on a daily basis. That's a basis just to stay here. // You want somebody who could think through a problem – because we would have to train them anyway. // It's about the way people think, it's troubleshooting.
Teamwork, ability to work with others	Ability to work with a team and fit in within IT department and act as a team player	Different from working with users; this pertains more to relating with peers	One of the questions I ask is "Who do you work with? Do you have a peer?" "Yeah, I have a peer." "Who's it? So if I tap him on the shoulder, what do you think he'd say about you?" And that gives me a little insight // 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. // Work well on a team environment // that's one of the key things that I look for, is their ability to be a part of a team and a group. And we have a really strong team. // So our fundamental hiring problem isn't finding skills. A lot of the available people understand IT. It's finding people who can work together. // , I take them out to coffee and try to find out whether I think they're going to be number one a good fit in the department // they need to be a good "culture" fit. And those sorts of things are, do they embrace the idea of teamwork?
Hands on skill		Not as directly related to knowledge as much as the ability to complete IT tasks.	as long as they've at least had the IT savviness and they've done at least a little, like 6 months to a year of hands-on work, that's really what they're looking for in IT is that hands-on work // Then since we did role playing, we would want to "What is your technical aptitude?" // we did have a hands-on practical assessment for them as well. // definitely need to have computer knowledge. When we first hire the person, they need to know computers. They basically have to be handy. They know how to deal with stuff.
Technical skills and knowledge	Specific knowledge of IT and computers	Has to do with knowledge about technology & systems, rather than more general modes of problem solving or working with others, but still abstract	it's "What kind of technical skills do they have? What kind of experience do they have?" // And a good understanding from a technical perspective of hardware, system software, and I think they had some security-type things that they wanted them to know. And probably the Windows environment. Some networking background, I'm sure, was important to them, because these are not standalone computers – they're all hooked up to a network. // So, they have to have certain knowledge of the systems, whatever we're hiring for - Windows, Vista, or XP, and the server, and it depends on the level of responsibility of we're giving them // ." In IT, you have to have a certain level of technical knowledge, but we'll train you on the

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			rest of it. // And it's becoming, it seems, more and more important is to have that Microsoft background. Everyone's using it, whether it's in school or in other jobs, but when you actually are supporting it, you have to really understand it // Definitely our number one thing is they've got to have knowledge in the whole Microsoft… we're a Microsoft company. So they need to have the whole Windows… and we're very good about updating and moving up