

**A Review of Skillshed Analysis Practices and Outcomes**

Dr. Hannah Scott\*

Faculty of Social Science and Humanities

and

Dr. Igor Kotlyar

Faculty of Business and Information Technology

University of Ontario Institute of Technology

\*Please direct all correspondence to:

Dr. Hannah Scott, Professor

Faculty of Social Sciences and Humanities

University of Ontario Institute of Technology

(Downtown Campus, 55 Bond St. E.)

2000 Simcoe St. N.

Oshawa, ON, Canada. L1H7K4.

Ph: 905-721-8668

Fx: 905-721-3372

Em: [Hannah.scott@uoit.ca](mailto:Hannah.scott@uoit.ca)

Web: [www.uoit.ca](http://www.uoit.ca)

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## **A Review of Skillshed Analysis Practices and Outcomes**

### **Main Messages**

The skills gap – whether in the form of wide ranging skills shortages or the result of skills being mismatched to employment opportunities – has been described as one of the great challenges facing the Canadian economy. Communities have identified a growing need for data gathering at the local level to address the community response to putting workers in touch with jobs in their communities. Provincial and federal studies looking at the “skills gap” between the skills workers have and the skills employers need do not provide sufficient direction for addressing local responses to what is needed within the community.

One response to this issue, undertaken in the United States, is conducting a “skillshed study.” A skillshed is an area from which employers pull their workforce and workers receive locally relevant training and education. Skillshed studies can be done within a relatively small geographic area and/or be sector-specific in their focus (e.g., skills associated with the manufacturing or information technology sectors within a specific region). Both the workforce and the business community are surveyed in efforts to assess which skills each has and/or needs, in efforts to determine an appropriate community response to addressing unemployment and preparing future employees for the ever-changing labour market.

Skillshed analysis is a promising tool for evaluating skills within a labourshed and skills needs at a local level, however the methodology for conducting this form of analysis still needs to be further systematized and refined. Furthermore, the economic impact of skillshed analysis is unclear, as there are generally no systematic follow-up efforts to assess or measure the impact of conducting skillshed analysis.

If conducting a skillshed analysis, we recommend a few practices that may help in assuring the effectiveness of the effort. First, it is important to determine, in advance, the exact purpose of the report and its target audience: *Who* the information is intended for and *how* it is going to be used? For example, reports intended to assist the business community with site selection decisions should contain different information than those intended to assist economic development officials in developing economic growth initiatives and to create policies that ensure the workforce is adequately prepared to support emerging occupations and industries.

Second, these surveys require that they be done by telephone or in person and randomized sampling methods to enhance response rates and make the study meaningful to the entire community. This can be expensive and, therefore, having a financial strategy is important before initiating the study. Third, make reports easy to understand. According to survey results, users of skillshed studies experience difficulties understanding skillshed reports and have indicated that they might benefit from assistance in interpreting the data provided. Fourth, educate the public and potential stakeholders on the importance of studying a skillshed and the benefits that such an assessment would have for the community. Finally, conduct follow-up evaluation analyses to assess whether the study is of value to stakeholders and learning if, when, and how the data is actually being used.

## **A Review of Skillshed Analysis Practices and Outcomes**

### **Executive Summary**

- Canadian companies are encountering increasing challenges in finding qualified job candidates with the appropriate skill sets. The shortage of skills is affecting most sectors and regions of the country and impeding Canada's economic growth and innovation capacity particularly in technology-based and knowledge-based sectors.
- There is some disagreement on whether the Canadian workforce is experiencing a skills gap (i.e., the skills needed for jobs in Canada are not available) or a skills mismatch (i.e., the skills needed for jobs exist within the workforce, but they have not been matched for a number of reasons to the right employers).
- Communities have identified a growing need for data gathering at the local level to address the community response to putting workers in touch with jobs in their communities. Provincial and federal studies looking at the "skills gap" between the skills workers have and the skills employers need do not provide sufficient direction for addressing local responses to what is needed within the community.
- *Skillshed* analysis is a process for evaluating and projecting skills needs at a *labourshed* level, which refers to the geographic area from which an employer draws its commuting employees and skills, level education, and experience that the workforce possesses. The two elements that make this form of analysis unique include (i) its focus on the geographic area meaningful to employers and employees (as opposed to following municipal or provincial boundaries) and (ii) its focus on skills (as opposed to types of jobs). While this innovative approach to projecting skills needs has been gaining popularity in the United States, it has not been done in the Canadian context.

### **Approach/Methodology**

- For the purposes of this project, extensive searches of newspapers, academic and trade journals, and industry and consulting reports were conducted using the search terms *skillshed*, *labourshed*, *skills gap*, *gap analysis*, and *labour availability*. We have examined *skillshed* analysis reports completed in the states of Colorado, Iowa, South Dakota, Texas, Illinois, Indiana, Tennessee, Mississippi, Michigan, Minnesota, Rhode Island, and Virginia. *Skillshed* studies have not been done, to date, in Canada or the United Kingdom.
- Templates of both a workforce and an employer *skillshed* survey have been prepared based on best practices, based on the studies reviewed, and are available in the Appendix.

### **Results**

- Studies vary in how analysts establish boundaries of a *labourshed* area to conduct a *skillshed* study. Tactics ranged from surveying within a 15 to 65 mile radius around a community node. Factors typically included for consideration in establishing boundaries of a *skillshed* are population density, local geography (e.g., rivers), and transportation infrastructure (e.g., roads and highways). Studies have also focused on a series of skill sets (for example occupational or essential skills) in a geographic region.

- The two key components of skillshed analysis include the *workforce survey* and the *employer survey*. The *workforce survey* is used to measure the supply of available workers within a labourshed tapping into the skillsets, work activities, and tasks of workers. The *employer survey* is used to measure the demand for workers within a skillshed, as well as understanding what education, training, and skills are needed to produce consumer products.
- *Workforce surveys* generally collect the following information on individuals including, but not limited to: age, gender, race, educational background, areas of study, certifications attained, desired/current commute times, employment status, current or desired employment type and/or current or desired occupation. Respondents are also often asked their desired salary, the lowest salary they would accept to live closer to their worksite, openness to job-specific training, willingness to move for work, and the tools and resources they use to search for a jobs.
- Some *workforce surveys* measure the supply of skills at the basic skills level (i.e., literacy, numeracy), while others measure skills at the occupational level (e.g., analytic, managerial). For example, respondents are often asked to identify the knowledge or skills used in their current or past occupation and the length of time that they have used each skill. Some initiatives indirectly measure a respondent's skills by identifying the knowledge levels and work activities associated with their job by using software aids such as the Occupational Information Network (O\*NET).
- *Workforce surveys* are generally conducted via telephone. Phone numbers associated with landlines and/or cell phones belonging to a skillshed area are randomly selected using tools such as Computer Assisted Telephone Interviewing (CATI) software. To avoid respondents being geographically clustered in one area of the skillshed, areas are sometimes divided into different zones that require equal representation in the sample (i.e., quota sampled). Cell phone numbers can be problematic as these numbers are not tracked by geographic locators (such as ZIP or postal codes) and users may be less willing to participate in the survey as some have to pay for the call.
- Sample sizes in the studies examined tended to range substantially, from 98 to 773, and some initiatives maintain an annual or biannual 'rolling survey' in which over-sampling from a specific area is used.
- In contrast to workforce surveys, *employer surveys* collect data primarily through face-to-face interviews. Other initiatives utilize a combination of both in person and telephone interviews, as well as email correspondence. Most surveys rely on interviews with area employers, while others also collect information from educators and human resource professionals. Most studies appear to have only 30 to 35 participants, however at least one study used 586 employer surveys in order to conduct its skillshed analysis.
- Employers are commonly asked about the following: size of their workforce; future plans to expand or downsize (including an assessment of the number of employees who are eligible to retire within the next five years and of plans to replace retiring employees), the number of job vacancies and the degree of challenge employers face when filling positions; the availability of skilled workers in their area, the type of skills that they think are needed in the workforce, perceived quality of area educational institutions, and any partnerships or programs that such institutions have in place to respond to the needs of the area workforce. Employers are also asked about starting pay rates and the competitiveness of those rates, and perceived worker attitudes and productivity. This last variable is assessed through measures of employee turnover, tardiness, absenteeism and substance abuse.

- Studies vary greatly in the level of analysis conducted in each of the skillshed reports, ranging from simple data summaries, to assessments of workforce skill levels and/or recommendations about future directions. For example, the most detailed study reviewed included an in-depth analysis of three occupational clusters in the labourshed that were believed to have the most potential based on consideration of the labourshed trend analysis, current workforce needs, projected employment growth, and median wages. The study focused on these criteria in order for the region to make an easier transition in terms of advancing economic development and narrowing the skills gap.

### **Further Research / Research Gaps**

- Skillshed analysis is a promising technique for gathering relevant data needed to help with local economic planning. The methods surrounding this type of activity, however, have to be further refined and consistently documented. It appears there is no common practice for conducting skillshed studies.
- In reviewing publicly available skillshed reports, the target audience is not entirely clear. Many of the reports are intended for use by the business community to assist companies with decisions pertaining to site selection, relocation, expansion, employee retention and training requirements. Other reports indicate that the information is intended for use by broader community and economic development officials in order to help retain and expand existing businesses, recruit new businesses to the area, develop economic growth initiatives, and to create policies that ensure the workforce is adequately prepared to support emerging occupations and industries.
- The economic impact of conducting skillshed analysis is unclear. There are generally no systematic follow-up efforts to assess or measure the impact of conducting skillshed analysis. Some surveys reveal that individuals who have used labourshed/skillshed reports were generally satisfied with the analysis and information provided. There are also periodic accounts of skillshed analysis serving as an effective economic tool, however these are largely unreferenced and anecdotal testimonials. There are some limited reports that availability of skilled and semi-skilled workers was reportedly improved and skills that were previously noted as being difficult to find became increasingly available. However, our search of newspaper articles has not produced any stories detailing economic development, economic growth, or a distinguishable effect on the unemployment rate in the region within the two years following the completion of a skillshed report.
- Future research should work on the development of better methods for measuring specific skills at a sufficient level of detail. The present measures of skills are too broad to be meaningful for assessing the exact skills gaps in the case of occupations that are changing and the new occupations that are emerging. Organizations are redefining jobs and recognizing a need for additional skills in their employees. Skill shortages are more related to workers not possessing the right combination of specific skills and experience, rather than a lack of general skills associated with a particular profession. This issue is reflected in survey feedback which indicated that some individuals find the results to be too generic, lacking job specific information.
- Further research should also seek to develop better methods for evaluating and assessing the impact and effectiveness of skillshed initiatives. There is a need to establish criteria and methods for measuring benefits of such studies.

## **A Review of Skillshed Analysis Practices and Outcomes**

### **Final Report**

#### **Context:**

Canadian companies are encountering increasing challenges in finding qualified job candidates with the right skill sets. The shortage of skills is affecting most sectors and regions of the country and impeding Canada's economic growth and innovation capacity particularly in technology-based and knowledge-based sectors. This presents a challenge to the Canadian economy and its workforce. There is growing need to know which specific skills are in short supply in various communities to be able to respond effectively to each situation, as communities differ in terms of their skills needs. Correspondingly, there is increasing demand for knowledge on conducting skills needs analysis at a local level. Unfortunately, in Canada, there has not been a single effective method identified for collecting such information. The purpose of this review of the American practice of *skillshed* analysis is to generate a synthesis of practices for conducting such a study, and to develop a template for use by pertinent stakeholders across this country.

*Skillshed* analysis is a process for evaluating and projecting skills needs at a *skillshed* level, which refers to the geographic area from which an employer draws its commuting employees and skills, education, and experience that the workforce possesses. The two elements that make this form of analysis unique include (i) its focus on the geographic area meaningful to employers and employees (as opposed to following municipal or provincial boundaries) and (ii) its focus on skills (as opposed to types of jobs).

Recently, we were approached by the Durham Workforce Authority (DWA) which “provides leadership in labour market planning through the creation of the annual labour market plan”<sup>1</sup> and is one of 25 Workforce Planning Boards spread across Ontario. The DWA was looking for data that revealed more labour market information, information for site selectors, information for economic development, etc., at the local level. The data that were available to them at provincial and federal levels were not effective in helping the members of this organization understand what they needed to do in their own region. The data analysis was too broad, showing amalgamated numbers which were of little use, and not specific to the employment needs of The Regional Municipality of Durham. They needed local data for local solutions. The goal was to create an understanding of the available skills and the desired skills within the area for which they were charged. The DWA was looking for data that could speak to the need to have the appropriate level of detail for their planning process.

The DWA also brought with them documentation on a practice that had been conducted in the United States, called a “skillshed analysis.” They wanted to know if we could try to replicate it here. They stated that it looked like the level data and analysis that was provided in these studies would be appropriate for their planning process. Further, the Durham Region Local Training Board’s mandate calls upon the DWA to promote and facilitate the development of a skilled, relevant, inclusive and adaptive labour force. The DWA’s mandate outlines that this be achieved through improving the availability of labour market information, planning frameworks that advise on training and adjustment programs which can be deployed locally, and promotion of life-long learning within the region. They also suggested that if this skillshed analysis was successful within the Regional Municipality of Durham, that other Workforce Planning Boards have hinted that this might also be a useful in their communities.

### **Approach:**

A number of studies were collected from a variety of sources on skillshed analyses that had been conducted in the United States by both private and public entities. Further, research was also collected and summarized on other similar data collection processes and reporting systems that currently exist here in Canada that have been used to assess similar issues: skills gap, labour shed, and labour studies. These studies were reviewed for methods used to collect this data, how the data from the studies were used, and whether the outcomes produced by the studies were useful. For the purposes of this project, extensive searches of newspapers, academic and trade journals, and industry and consulting reports were conducted using the search terms skillshed, labourshed, skills gap, gap analysis, and labour availability. We have examined reports completed in the states of Colorado, Iowa, South Dakota, Texas, Illinois, Indiana, Tennessee, Mississippi, Michigan, Minnesota and Virginia. Results from this review were used to build a template for both a workforce and an employer survey, using best practices that emerged out of this review. These survey templates are available in the Appendix.

### **Literature review:**

#### **Addressing the skills gap in the Canadian context:**

Recently, there has been a significant amount of attention focused on the shortage of skilled workers and the growing challenges that Canadian companies face when trying to recruit employees who have the skills needed for a position.<sup>2</sup> The shortage of skills, or the skills gap, may have a negative effect on a company's ability to be productive, profitable, and innovative. If occurring on a grand scale, this can reduce the country's competitiveness, prosperity, and



potential for economic growth. As a result, the skills shortage has been described as “one of the great challenges facing Canada and has been identified as the country’s leading economic issue.”<sup>3</sup>

The economic implications of the skills gap are illustrated by Stuckey and Munro,<sup>4</sup> who estimate that, in the province of Ontario alone, the shortage of skills results in \$24.3 billion in lost Gross Domestic Product (GDP), \$4.4 billion in lost federal tax revenues, and \$3.7 billion in lost provincial tax revenues each year. On a more individual level, there is a growing disparity between the wages of employees who are considered to be ‘more skilled’ and the wages of employees who are considered to be ‘less skilled.’<sup>5</sup> As a result, marketable skills are now considered to be a “critical asset” for those who are searching for jobs and for those who already have jobs.<sup>6</sup> In this sense, the skills gap can affect a person’s employability and salary level and can, as a result, also influence one’s quality of life.<sup>7</sup>

While the concept of a skills gap has been subject to various different meanings and applications, at a more basic level, it refers to the difference between the skills required for a job and the skills possessed by a job-seeker.<sup>8</sup> The extent or severity of the skills gap is shown by the fact that workers are unable to find jobs and employers cannot find workers with the skill sets that they require. This is emphasized by Miner, who explains that there is a “looming shortage of skilled labour occurring in the midst of a surplus of unskilled labour.”<sup>9</sup>

The growing demand for skilled workers is closely associated with the development of a knowledge-based workplace, which has resulted in changes to both the nature and organization of work. As a result, jobs are now more specialized than in the past, and therefore require workers to have higher levels of education and skills.<sup>7, 10</sup> Jobs can be classified within the knowledge-based workplace depending on measures of research, development, and human

capital. For example, a job or profession could be categorized as being of a high, medium, or low-knowledge depending on the proportion of employees who have a post-secondary education or the proportion of employees who conduct innovative research to advance their field.<sup>10</sup>

In order to illustrate the pervasive shift toward a knowledge-based workplace, the Canadian Council of Learning noted, in 2006, that, between 1991 and 2003, there was a 12% increase in the number of businesses in Canada. However, despite the moderate increase in the number of businesses over this period, there was a 78% growth in the number of high-knowledge businesses, a 14% growth in the number of medium-knowledge businesses, and a 3% decrease in the number of low-knowledge businesses.<sup>10</sup> The demand for highly skilled workers that has accompanied the transition to a knowledge-based workplace is not unique to Canada; in a review of the transitioning economies in Hungary, Romania, and Russia, Commander and Kollo found a corresponding “strong bias against unskilled labour” in each nation.<sup>11</sup>

One of the identifying features of the knowledge-based workplace is the presence of advanced and sophisticated technology, which can increase productivity and facilitate both communication and information sharing.<sup>10</sup> This has contributed to the skills gap, as such technologies are constantly evolving and, as a result, require workers to continually engage in learning and skill upgrading.<sup>12</sup> At the same time, the shortage of skills is intensified by a worker shortage, which may be the result of an aging population where a large number of the “Baby Boomer” generation will be retiring from the workforce over the next few decades.<sup>7, 13</sup> Another factor that has contributed to the skills gap is related to globalization and the growing competition that Canadian businesses face as a result of the increased level of skills held by people in developing countries.<sup>7</sup> As a result of markets now being connected globally, labour that has in the past been completed by domestic unskilled workers is now often outsourced to foreign

countries. This reduces the domestic demand for unskilled labour, which in turn increases the overall demand for skilled workers.<sup>5, 10</sup>

### **Solutions for the Skills Gap:**

Unsurprisingly, discussions of how to address the shortage of skills often focus on education. For example, Stuckey and Munro conclusively state that the shortage of skills is the “result of too many Ontarians not obtaining adequate levels of education.”<sup>14</sup> In this context, it would appear that the most basic solution to the skills gap is to re-train existing workers and to educate current students differently. Consequently, it follows that innovative measures are required within the education system in order to prepare the country’s ‘human resources’ for the current and future demands of businesses and industries.<sup>15</sup> However, despite education often being at the center of discussions on skill shortages, it is apparent that the education system is only one of many factors that are responsible for both creating and maintaining the skills gap. As such, in order for solutions to the skills shortage to have any merit or effectiveness, they must be formed through a comprehensive and rounded analysis that examines the issue as a whole.<sup>13, 16</sup>

It is worth noting that there is a degree of skepticism as to the existence and severity of a skills gap in Canada. For example, Burleton, Gulati, McDonald and Scarfone conclude that there is no evidence that the country is suffering a broad-based or aggregate-level skill shortage. While this may be the case, their findings do support the existence of skill mismatches at an occupational and regional level. In other words, studies done at the federal level have suggested that we Canadians may have the skilled workers we need within our own borders, but the local level knowledge suggests that those skilled labourers may not be where the jobs are. They conclude that “bold movement is warranted to maintain Canada’s standard of living today and

into the future.”<sup>17</sup> In order to do this, Burleton et al., in 2013, recommend that comprehensive and *specific* labour market information be collected in order to develop and guide *targeted* strategies and policies to address the skills gap. Furthermore, Custodia-Loria et al. suggest that “more creative solutions” be used to help match skilled employees with appropriate job openings,<sup>13</sup> and Act concludes that any forms of addressing the skill shortages must be practical in nature.<sup>8</sup>

### **Measuring Skills in Canada:**

In Canada, there has not been a single effective method identified for collecting skills-based information at a local level, which is important because communities differ in terms of their skills needs. In other words, it is a safe assumption that the skills needed in Fort McMurray, AB, are not the same as those needed in Vancouver, BC, Saskatoon, SK, Trois-Rivieres, QU, or Charlottetown, PEI. This is a serious shortcoming in the effort to develop a skilled labour pool, as local skills-based information is not easily obtainable in a suitable format from other sources. While sources that provide information on labour gaps in Canada do exist, they generally focus on labour as opposed to the skills workers have. At the national level, the Canadian Occupational Projection System (which is maintained by Human Resources and Skills Development Canada) provides projections of labour demand and supply and identifies occupations that may face a shortage or surplus of workers. There are also numerous studies that have been conducted at a provincial, regional and even local level.<sup>18</sup> However, these too have largely focused on labour shortages and surpluses, whether by industry or by the National Occupational Classification code,<sup>19, 20</sup> instead of focusing on specific skill sets people possess.<sup>21</sup>

Several challenges do exist when drawing conclusions from this type of information. First, it is often too broad to be meaningful for assessing the exact skills gaps that exist within a relatively small geographic area. For example, while there could be a sufficient number of representatives for a certain occupational group, there could still be a skills gap, as many individuals may lack certain critical skills required by employers in the area. This is shown in the case of information and communication workers, as Industry Canada, in 2010, has recognized that “skill shortages are more related to workers not possessing the right combination of specific skills and experience required by Canadian employers, rather than a lack of formal qualifications.”<sup>22</sup>

Second, the information collected at the national and provincial level is not very meaningful for employers, many of whom draw labour from a narrow geographic area, or for individuals who may not find travel or relocation to be a feasible option. The demand and supply of particular skills tends to differ substantially by locality across Canada, and there is a great need for knowledge on evaluating and projecting skills needs in an employer’s specific recruiting area. This is supported by the Canadian Chamber of Commerce’s observation that: “Educators may not be fully aware of local employers’ needs. We need better systems for predicting future skills needs. There are limitations in the current labour market information, which is national and provincial, not local.”<sup>23</sup>

Finally, while analysis of occupational groups can be valuable for industries characterized by a stable occupational structure and for research and policy development, such analysis is less useful when the required knowledge, skills and attributes of an occupation are changing, when new occupations are emerging, or when there are great ranges in the

proficiencies associated with a given occupation. As such, knowledge of how local communities can evaluate and project their particular skills needs is critically required.

### **What is a Skillshed Analysis?**

The concept of a skillshed analysis was created by the Institute for Decision Making at the University of Iowa in 1998. Their primary goal in developing this model was to respond to the needs of economic development groups, who were trying to form a nuanced understanding of the labour force in their area. In the state of Iowa, such studies continued to be conducted by the Institute for Decision Making until 2001, after which point the Iowa Workforce Development assumed responsibility for completing labourshed assessments.<sup>24</sup>

A skillshed is defined as “the geographic area from which a region pulls its workforce and the skills, education, and experience that the workforce possesses.”<sup>25</sup> Closely related to the concept of a skillshed is a labourshed, which is the “area or region from which an employment center draws its commuting workers.”<sup>26</sup> Thus, whereas a labourshed refers to the geographic area from which a region recruits its workers, a skillshed refers specifically to the skills, education, and experiences of the workers who comprise this geographic area. Studying a workforce at the labourshed level is different than other assessments that focus on a specific region or community, as it involves the examination of a distribution of workers as they relate to a node community, regardless of any natural (i.e., rivers, mountains) or political (i.e., state borders, county lines) boundaries.<sup>27</sup>

The general goal of a skillshed analysis is to compare the experiences and skills of an area’s labour force with the reported needs of area employers.<sup>28</sup> In other words, a skillshed analysis identifies and evaluates the supply and demand for labour with respect to the skills that

are required to work within an occupation.<sup>29,30</sup> The main interest of these studies focuses on commuting patterns, current or desired wages, and skills. The focus on skills was linked to essential skills for comparison across multiple locations using devices such as surveys and information collected on and around these issues. In addition to showing the strengths of a region, this information can be examined in order to identify “which occupations or industries [a] region could grow into by understanding the difference between the current skill set and that skill set required by emerging markets.”<sup>31</sup> Although such analyses have been called various different names (for example, skillshed, labourshed, labour availability, labour force, and labour market analyses), they are all similar in that they attempt to assess the skills and experiences of a workforce at the labourshed level. While there are differences in the scope and focus of these reports,<sup>32</sup> this paper considers all studies that examine the skills of a workforce and/or potential workforce at the labourshed level.

### **Identifying the Boundaries of a Skillshed:**

Factors related to an area’s geography and infrastructure may affect an individual’s commute to work and can, therefore, play a role in determining the boundaries of a labourshed. For example, while one employee who lives a far distance from work may be able to easily commute on a highway, another employee who lives a short distance from work may face challenges as a result of a geographic obstacle such as regular dense street traffic, a lake, or river.<sup>27,33</sup> It has been recognized that workers prefer to commute short distances, and that when this is not the case, they are likely to either move closer to their job or change jobs so that they are closer to their home. This is supported by the findings of the 2007 Labourshed Analysis for Boone and Winnebago, which found that 84% of employees live within 15 miles of their place of

employment. As a result, employers tend to be less comfortable when hiring workers who commute long distances, as they perceive these individuals as being less committed to the company and more likely to leave for a job that is closer to their home.<sup>34</sup>

Throughout the various skillshed reports, there does not appear to be a common practice in place for identifying the boundaries of an area's labourshed. Of the studies reviewed, the Labourshed Analysis for Boone and Winnebago Counties used the most conservative boundaries, which were identified as being within a 15 to 20 mile radius of the node community.<sup>34</sup> Other studies determine labourshed boundaries using a 40 mile radius,<sup>28</sup> a 45 mile radius,<sup>33</sup> or a 65 mile radius<sup>35</sup> from the node community. Of note, while laboursheds may be of a similar geographic size, they can vary greatly in terms of both population and population density.

### **Who can use the skillshed analysis?**

In reviewing publicly available reports, it is not entirely clear who uses the information that is provided by a skillshed analysis. However, it is apparent that many of the reports are primarily intended for recipients within the business community. For example, the Labour Availability Reports for East Central Indiana<sup>36</sup> and Amarillo, Texas<sup>37</sup> indicate that the availability of labour, the skills and experience of the workforce, and the cost of wages are among the most critical factors that a business considers when determining whether a location is appropriate for new or expanded operations. Similarly, Foote Consulting Group<sup>34</sup> states that skillshed reports are an effective tool in understanding workforce issues as they relate to decisions of site selection, relocation, expansion, and employee retention and training requirements and opportunities.



Other skillshed reports indicate that the information being collected is intended for a broader or more general audience. In addition to current and prospective businesses, the information contained in a skillshed report can be used by community and economic development officials in order to retain and expand existing businesses and to recruit new businesses to the area.<sup>24, 36, 37</sup> Local governments and policy makers can use this information to develop economic growth initiatives and to create policies that ensure the workforce is adequately prepared to support emerging occupations and industries. This is often done in conjunction with educational institutions (i.e., colleges and universities), which may develop programs or modify an existing curriculum in order to respond to the needs of employers in the area.<sup>27</sup> In Ontario, the DWA has offered that there is a need for the detailed and local data for economic development, to use in making decisions about site selection, essential skills and/or literacy based skills and programs, employment trends, and community and workplace planning.

On a more individual level, information collected on the gaps in labour supply and demand within an area can be used by local stakeholders to make decisions regarding the training and skills needed to transition between different occupations<sup>31</sup> within a relatively small geographic location. In addition, this information can be used by “up-and-coming workers” in order to make informed decisions involving their education choices and future plans to enter the workforce.<sup>38</sup>

### **Types of surveys used in skillshed analyses**

Skillshed analyses are often conducted using two surveys, carried out in the same geographic area over the same time frame. The first of these is given to individuals in the labourshed asking about current or desired skill sets, while the second is given to members of the

business community where those skills would typically be used. Sections of both surveys are closely matched in style of questioning so that the results can be compared for analysis. Surveys can be broad based, taking an inventory of skills possessed and or/needed by both individuals and businesses within a geographic boundary. Alternatively they can be targeted to specific skills of specific sectors within a commuter radius around a key location where there is sector concentration. For example, a community skillshed team can decide to survey employers seeking specific knowledge-based skills, and systematically survey the workforce about whether they possess those skills.

*The Workforce Survey:*

One of the key components of a skillshed analysis is the workforce survey, which is used to measure the supply of available workers within a labourshed and “the knowledge, skills, and work activities those workers possess.”<sup>39</sup> Of the publicly available reports, information appears to be most commonly collected from individuals who are between the ages of 18 and 64 years, as it is believed that people between this age range are most likely to be either employed or willing to enter/re-enter the workforce.<sup>27</sup> Interestingly, in an effort to assess the future workforce, the Northeastern Colorado Labour Force Study also collected data on the career and education plans of individuals between the ages of 16 and 18 years.<sup>33</sup>

Sample sizes for workforce surveys were not always disclosed, however when available, the number of participants who participated in this part of the assessment generally ranged from 98 to 773. The number of respondents included in a sample is dependent on the size of the population being studied; for example, in order to have a representative sample, Colorado State University Extension and Colorado Department of Local Affairs<sup>26</sup> selected a sample size that

would achieve a +/- 5% margin of error at a 95% confidence level. While most skillshed studies begin with data being collected from the labourshed that is under review, the state of Iowa maintains a continual 'rolling survey' in which over-sampling is used and respondents are identified through their ZIP code. This information is entered in a statewide labourshed database, from which data can be extracted for analysis as desired.<sup>24</sup>

All of the examined skillshed reports used a telephone survey to collect data on the area's workforce. Phone numbers were selected at random, and were at times obtained using Computer Assisted Telephone Interviewing (CATI) software.<sup>40</sup> Using their ZIP code, respondents are classified as either living in the node community, living near the node community, or living in an outlying area in relation to the node community. In order to prevent respondents from being clustered in one area of the labourshed, quota sampling methods can be used. For example, Iowa Workforce Development<sup>41</sup> divides each area being studied into three different zones that require equal representation in the sample.

Studies vary with respect to the use of landline and cell phone numbers to contact participants. While some studies do make use of both landline and cell phone numbers for the telephone survey,<sup>42</sup> the Northeastern Colorado Labour Force Study does note that using cell phones to contact participants can be problematic because cell phone numbers are not tracked by ZIP code. Additionally, there are concerns that a cell phone user may be less willing to participate in the survey because he or she has to pay for the call.<sup>33</sup>

All of the skillshed studies collected demographic information from respondents, which included their age, gender and race. Table 1 provides a summary of the types of data collected with respect to a respondent's education, experience and skills. As is shown, all studies asked participants a range of questions with respect to their educational background, such as highest

level of education completed, areas of study and certifications attained. Additionally, participants were often asked to indicate their area of employment or current occupation. For consistency with other labour market information, a common practice is for a respondent's occupation to be recoded according to the Standard Occupational Coding System, which is an occupation classification system that is maintained by the United States Department of Labour.<sup>41</sup>

Individuals participating in the workforce survey were also asked to identify their skills, which were generally measured at the occupational level.<sup>43</sup> Respondents were often asked to identify the knowledge or skills used in their current or past occupation and the length of time that they have used each skill. The Iowa Workforce Development indirectly measures a respondent's skills by identifying the knowledge levels and work activities associated with their job. This is done using the Occupational Information Network (O\*NET), which was created by the United States Department of Labour and the North Carolina Employment Security Commission, and uses "a continuing worker survey [to maintain a] database of the knowledge, work activities, abilities, and distinguishing characteristics of each occupation."<sup>44</sup>

All of the skillshed studies recognize that a region's potential workforce consists of both unemployed and underemployed persons. According to the Iowa Workforce Development,<sup>41</sup> individuals are classified as being unemployed if they are actively seeking work or if they are a homemaker or retiree who is willing to enter or re-enter the workforce. Alternatively, underemployed individuals are those "who are working but who desire better jobs and who appear to possess the skills, education, and experience to qualify them for those better jobs."<sup>45</sup> Employed individuals are classified as being underemployed if they work less hours than what they desire, if they appear to have a mismatch of skills,<sup>46</sup> or if they have a low income that places them below the poverty line.<sup>41</sup> In order to assess the potential workforce, respondents are

generally asked to identify how far they are willing to commute to work, their desired salary and the lowest salary they would accept, their openness to job-specific training, and the tools and resources they use to search for a jobs.

When analyzing the data collected from a workforce survey, some studies made an effort to validate the responses being provided by participants. This is evident in The Amarillo, Texas Area Labour Availability Report, as The Pathfinders<sup>37</sup> removed any participants from the results who said they would accept a job for what was perceived to be an unreasonable wage. Similarly, for individuals who indicate that they are overqualified for their current job, the Iowa Workforce Development<sup>41</sup> reviews the respondent's education, experience and skills in order to assess whether this is indeed the case.

Looking at how these surveys have been done, it is clear that there is a wide variability of what is collected in each survey, depending on several factors. A template of a workforce survey has been built and offered to the reader, in the Appendix, should they consider conducting a study of this type. We recommend this document be used as a facilitation tool and starting point for discussion about conducting such a study. Stakeholders may also wish to tailor their questions to the needs of the group.

#### *The Employer Survey:*

A second key component of a skillshed analysis is the employer survey, which is used to measure the demand for workers within a labourshed and “the education, training, and skills required for...industries to produce...products and services for consumers.”<sup>47</sup> The majority of reports that were examined collected this data solely through interviews with area employers. This is grounded in the belief that employers provide a current and “expert opinion” of the labour

situation in a particular area.<sup>34</sup> Two exceptions to this method were the Longview, Texas Area Skillshed Analysis which collected information from both area employers and educators.<sup>28</sup> In addition, on occasion, The Pathfinders also collected data from senior management and human resource professionals.<sup>48</sup>

While a face-to-face interview was the most common method for administering the employer survey, The Pathfinders<sup>28</sup> did collect information for The Longview, Texas Area Skillshed Analysis through a combination of both in person and telephone interviews, as well as email correspondence. While sample sizes for the employer survey were not consistently disclosed in the publicly available reports, most studies that took place outside of the state of Iowa appeared to have between 30 and 35 participants. Similar to Iowa's labourshed database, the state conducts a continuing Workforce Needs Assessment, from which employer data for a specific region can be extracted as required. As a result of their statewide effort to collect employer data, the sample sizes for studies conducted in Iowa are significantly larger than studies that are conducted in other states. For example, the Mid Iowa Growth Partnership region used 586 employer surveys in order to conduct its skillshed analysis.<sup>29</sup>

In the studies examined, employers were asked to comment on the size of their workforce in terms of future plans to expand or downsize. In some studies, this included an assessment of the number of employees who are eligible to retire within the next five years and of plans to replace retiring employees.<sup>49</sup> The employer surveys also collected information on the availability of area labour in terms of the number of job vacancies and the degree of challenge employers may face when filling positions.

Employers were asked to comment on the availability of skilled workers in their area and the type of skills that they see continually lacking in the workforce. According to the Iowa

Workforce Development,<sup>50</sup> a region's skill and education needs can also be inferred by the occupational demand for workers. In terms of education, respondents are often asked to evaluate the quality of area educational institutions, and to identify any partnerships or programs that such institutions have in place to respond to the needs of the area workforce.

Finally, many of the surveys asked respondents to identify their starting pay rates and whether they perceive these to be competitive with other area businesses. As is shown in Table 1, information was also often collected on perceived worker attitudes and productivity, which were assessed through measures of employee turnover, tardiness, absenteeism and substance abuse.<sup>51</sup> As with the Employee/Workforce survey, a copy of a suggested template of the workforce survey has been built, and placed in the Appendix.

### **Who carries out skillshed analyses?**

While skillshed and labourshed studies may still be conducted by academic institutions,<sup>33</sup> such assessments appear to be increasingly carried out by private consulting companies. The Pathfinders appear to be the most frequently used company when conducting publicly available skillshed reports; they primarily consult in the areas of strategic planning for economic development and business site-selection.<sup>36, 37</sup> Regardless of which company or organization conducts the skillshed analysis, they are generally retained by either a local government or by an area's economic development corporation, workforce investment board, and/or chamber of commerce.

Despite this, it often remains unclear who provided funding for a skillshed analysis and how a financial contributor has affected the scope of the assessment and its execution. As is shown by the skillshed analyses conducted by Iowa Workforce Development, it is not

uncommon for multiple parties (for example, different levels of government, economic development organizations, local businesses, educational institutions, utility companies, etc.) to pool resources in order to fund such assessments. To this end, it is important that the public and potential donors be educated as to the importance of studying a skillshed and the benefits that such an assessment would have for the community. Encouraging diverse community involvement and developing a sound financial strategy are effective methods which maybe more likely to result in data that more community stakeholders can use. This process should begin as early as possible as financial sponsors, once convinced of the usefulness of the project, may divide their contribution over multiple years.<sup>41</sup>

### **What kinds of analyses are done with the data?**

There appears to be a large degree of variance in the level of analysis conducted in each of the skillshed reports that were examined. Some reports simply present a summary of the data collected, and do not form any specific conclusions or recommendations for the reader.<sup>36</sup> Other studies include general conclusions that are based on the data collected; for example, Foote Consulting Group<sup>34</sup> identifies the potential workforce, the distribution of workers within the labourshed, commuting patterns, and also makes general comments on the skills possessed by those in the workforce.

The most detailed skillshed analysis reviewed was conducted by Iowa Workforce Development, which brought together and analyzed information from the area's labourshed study, workforce needs assessment, and the Occupational Information Network (O\*NET). These reports include an in-depth analysis of the three occupational clusters in the labourshed that are believed to have the most potential based on consideration of the labourshed trend analysis,



current workforce needs, and the projected employment growth and median wages.<sup>29, 52</sup> By focusing on these criteria, it is expected that the region will face “the path of least resistance” in terms of advancing economic development and narrowing the skills gap.<sup>53</sup>

The skillshed reports completed by the Iowa Workforce Development can also be used for the purpose of assessing an individual’s transferable skills. Through examining occupational profiles and performing a qualitative gap analysis, readers can create “job ladders”, which map out the additional education, training and skills an individual needs to qualify for a successive job.<sup>54</sup> This is shown, for example, in the Northeast Iowa Skillshed Report, which lists occupations that are closely related to the three identified emerging occupations in the region and identifies the shared and additional skills or education needed for a person to transition from a related occupation to one of the region’s emerging occupations. In doing so, a person is able to identify any overlaps or gaps between emerging and related occupations, which can serve as a “career pathway.”<sup>52</sup>

The Iowa Skillshed Gap Report illustrated this process for two occupation fields: nursing and those who are welders, cutters, solderers, and brazers. In each they looked at the occupational profile, knowledge requirements, and work activities, and tasks associated with the occupation. This process then generated lists of six other related occupations that use many of the same skills that an individual wishing to switch or upgrade jobs can consider.<sup>55</sup> Similarly, Mihm-herold (2010)<sup>56</sup> uses O\*NET information to identify the numerical difference between the knowledge and work levels possessed by dislocated workers in Northeast Iowa and the levels required to adequately complete a work activity. As a result, skills gaps can be quantified and prioritized, which encourages a more efficient use of limited resources, as resources can first be used to address the largest gaps.

Most of the skillshed studies compare their findings to other regions, which is done “for the purpose of making the data meaningful” and out of a recognition that prospect companies will consider a region on a comparative basis. As such, The Pathfinders often compare the labourshed’s underemployed workforce with other areas that were surveyed in the past eighteen months. Additionally, when conducting the employer survey, The Pathfinders ask employers who are a part of a company that has operations in other regions of the country to compare the area’s operations in terms of profitability and production.<sup>57</sup> Similarly, Iowa Workforce Development<sup>24</sup> notes that while there are no established methods for comparing labourshed data, results can be compared to the findings of previous studies that have been conducted in the region. For example, the Mid Iowa Growth Partnership Skillshed Analysis<sup>29</sup> calculates a change in location quotient for each occupational category, which is used to identify how the concentration of occupational clusters in 2011 differs from the 2005 results.

### **Benefits of a Skillshed Analysis:**

A review of the literature indicates that there have been no follow-up studies to assess or measure the actual benefit of conducting a skillshed analysis. Currently, the benefits of such reports have been revealed through unreferenced and anecdotal testimonials, which have indicated that the information provided has been both accurate and an effective economic development tool. Additionally, the impact of a skillshed analysis can be inferred through a comparison between the results of current and previous studies for the same region. For example, the Labourshed Analysis for Boone and Winnebago Counties notes that the availability of skilled and semi-skilled workers has improved since the area’s 2005 report was completed,

and that skills which were previously noted as being difficult to find have become increasingly available.<sup>34</sup>

Despite such indicators, the actual benefit of conducting a skillshed analysis remains unclear. It does not appear that post-survey impact assessments were not conducted at any of the sites. A search of newspaper articles did not return any conclusive evidence of economic development or growth in either the Mid Iowa or Longview, Texas region within the two years following the completion of their skillshed report. Moreover, the completion of a skillshed report does not appear to have had a distinguishable reducing effect on a region's unemployment rate, which is shown by increases in the rate of unemployment in the two years following the completion of Sioux City, Iowa's skillshed analysis and the sixteen months following the completion of Amarillo, Texas' labour availability report.

Nevertheless, in a survey conducted by the Iowa Workforce Development,<sup>58</sup> individuals who have used a labourshed report indicate that they are generally satisfied with the analysis and information provided. Participant feedback also indicates that some individuals find the labourshed results to be too generic with regard to both industry and job specific information. Also, some respondents reported difficulties understanding skillshed reports, and indicated that they might benefit from some degree of training on how to interpret the data provided.

### **Limitations of a Skillshed/Labourshed Analysis:**

Despite the benefits of studying a workforce skillshed at the labourshed level, there are notable limitations that are associated with this type of assessment. First, skillshed findings are based on a random sample of the labourshed's population, which means that results may not accurately reflect the entire area being studied.<sup>27</sup> Similarly, the data collected from area

employers may not accurately reflect all employers in the labourshed, as it is possible that businesses that do not have current vacancies or difficulties filling positions are less likely to respond to the survey.<sup>24</sup> Also, relying on an employer's perception of a skills gap or an individual's self-assessment of a skill can be problematic, as such evaluations are subjective in nature and generally lack consistency in the criteria used when making such an assessment.<sup>8</sup>

All evaluations in a skillshed analysis are conducted at an aggregate or cluster level; studies do not provide specific information on individual occupations and cannot be used to identify the skills possessed or the skills required by individual workers.<sup>41</sup> As such, skillshed reports are not meant to be "stand-alone documents" with respect to decisions involving individual workers or individual occupations.<sup>59</sup> They are also not immune from "large economic events" in a region, such as a new business locating in the area, a business closing, or mass layoffs.<sup>60</sup> As a result of such factors, it is recognized that skillshed data only remains accurate for eighteen to twenty-four months.<sup>27</sup>

Finally, a labourshed is not always made up of a "perfectly concentric ring" around the node community; its boundaries may be affected by both geographic barriers and infrastructure developments, which could either increase or decrease a worker's travel time.<sup>61</sup> Additionally, labourshed boundaries do overlap, which means that residents are attracted to work in multiple different geographic directions. While laboursheds can be easily identified, there is currently no way of assessing the actual impact that one labourshed has on another.<sup>27</sup>

### **Summary and Recommendations:**

The skillshed analysis presents as an innovative technique to evaluate and project skills needs within an employer's specific recruiting area and may also be a promising tool for local

economic planning. While the level of analysis does vary between reports, such assessments have been found to be a valuable tool in the effort to expand and recruit businesses to an area and in the development of policies related to the local skills gap issues. Despite these theoretical benefits, additional research is required on the actual effect that a skillshed analysis has on a region. To this end, future studies should consider conducting a follow-up assessment in order to evaluate the effect of a skillshed analysis in terms of economic development and the skills gap.

If conducting a skillshed analysis, we recommend a few practices that may help in assuring the effectiveness of the effort. First, it is important to determine, in advance, the exact purpose of the report and its target audience: *Who* the information is intended for and *how* it is going to be used? For example, reports intended to assist the business community with site selection decisions should contain different information than those intended to assist economic development officials in developing economic growth initiatives and to create policies that ensure the workforce is adequately prepared to support emerging occupations and industries. Knowing, in advance, what the data is to be used for can save considerable time and precious financial resources.

Second, it may be beneficial to collect information from examples of skillshed studies to see the number of ways that they have been done, and the lessons learned from these efforts. Creating a repository of examples and best practices is a good starting point for this type of survey given that the methodologies vary depending on community needs. Getting stakeholder input on these documents may also serve to guide a study that is right for a specific area. The process of choosing the right design to meet the needs of the community may also serve as an educational tool, the importance of which is listed below.

Third, these surveys require that they be done by telephone or in person using random samples to enhance response rates and create representative sample data which can be generalized to the larger community. Online surveys, albeit considerably cheaper to conduct, are not appropriate for this type of study as online surveys typically rely on volunteer samples. This means it is difficult to use the results of studies derived from volunteers (i.e., non random selection) to set policy as the sample is very likely not to be representative of the larger community. Although it may be tempting to try to save money by doing the online survey, getting individuals and employers to the website is often of considerable challenge. Telephone and in-person interviews can be expensive and therefore having a financial strategy is important before initiating the study. Stakeholders need to consider whether funding will be required for a one-time effort, or is the community willing to invest long term conducting a rolling survey, how will it be funded, and who will carry out the survey?

Fourth, make reports easy to understand. The few follow-up survey results that were available in the literature suggest that some users of such analyses experience difficulties understanding skillshed reports, and might benefit from assistance in interpreting the data provided. This education may also have to be done with stakeholders to understand the importance of gathering data/information from a skillshed and the benefits that such an assessment would have for the community. Finally, a skillshed study is of little value unless the data is used effectively. Having stakeholders and community members involved at the earliest points in the project may enhance promotion and education efforts around the study. We recommend that interested parties build in, fund, and conduct follow-up evaluation analyses to assess if, when, and how the data is actually used by stakeholders. Our findings suggest that this

*Skillshed: Scott & Kotlyar, KSG-2013*

is rarely done. One way to do this is to have a media strategy for all stages of the project to educate the public and attract new stakeholders to the project.

Table 1:

**Summary of Skill Measures used by four organizations who regularly conduct skillshed analyses.**

Variable.	<b>Colorado State University &amp; Colorado Department of Local Affairs</b>	<b>Foote Consulting Group</b>	<b>The Pathfinders – Skillshed Analysis</b>	<b>Iowa Workforce Development – Labourshed Analysis</b>
<b>Education</b>	-Highest level of education completed	-Primary area of study -Other areas of education or formal training -Additional certifications	-Highest level of education completed	-Educational field of study
<b>Experience &amp; Skills</b>	-Name top 3 job skills	-Identify current and primary occupation -Name the most important skills or knowledge base associated with current/past occupation -Number of years in current/past occupation	-Identify current area of employment -Indicate whether have a high, moderate, or low skill level for a series of skill categories -Identify the number of years of experience using each skill	-Identify current occupation
<b>Attitudes</b>		-Employer ranks on a scale from 1 to 10 employee turnover, absenteeism, attitudes, trainability, alcohol and drug use, and productivity	-Employer ranks employee turnover, tardiness, absenteeism, attitudes, productivity, and reliability as poor, fair, good, or excellent -Employer describes substance abuse testing practices	



## Appendix A

Template surveys built using best recommendations from various studies.

1. Workforce Survey
2. Employer Survey

## **Skillshed Workforce Survey - Template**

### **DEMOGRAPHIC INFORMATION**

**Please share with us a little bit about yourself.**

1. How old are you (in years)?

2. Please indicate your gender:

- Male
- Female
- Transgendered

3. What are the first 3 characters of your postal code? (i.e., L9L)

4a. What is the highest level of education that you have attained?

- No certificate, diploma, or degree
- High school certificate or equivalent
- Apprenticeship or trades certificate or diploma
- College, CEGEP, or other non-university certificate or diploma
- University certificate, diploma, or degree
- Graduate or post graduate degree
- Other, please specify:

4b. What is/was your field of study while attending school. If this question is not applicable to you, please write "not applicable."

5. What is your current employment status?

Please choose all that apply:

- Employed full-time
- Employed part-time
- Unemployed

- Retired
- Home maker full-time
- Home maker part-time
- Student full-time
- Student part-time
- Self-employed
- No answer
- Other, please specify:

**QUESTIONS FOR RESPONDENTS WHO ARE CURRENTLY WORKING**

**Now we would like to know more about the jobs people have: If you answered yes to being EMPLOYED, full or part-time, please answer the following questions.**

*(If you are not currently employed please skip to question 19)*

6. How many work places do you have? In other words, how many jobs do you currently hold?

--

7. Now, thinking of your primary employment, what type of business or organization do you work for?

- Accommodation, Food Services, and Hospitality
- Agriculture, Fishing and Hunting
- Construction
- Education and Training Services
- Entertainment, Arts, Recreation
- Finance and Insurance
- Forestry and Forest Industries
- Government
- Health Care and Social Assistance
- Information and Cultural Industries
- Licensed Trade (i.e. Plumber, Electrician, etc.)
- Management of Companies and Enterprises
- Manufacturing (i.e. textiles or machinery, etc.)
- Mining, Quarrying, and Oil and Gas Extraction

- Not-For-Profit
- Nuclear Industry
- Professional, Scientific, and Technical Services
- Professional Services (i.e. Legal, Accounting, Real Estate, etc.)
- Public Administration
- Retail
- Transportation and Warehousing
- Waste Management and Remediation Services
- Other, please specify:

8. What is your current job title(s)?

9. How long have you been at your primary job? (For example, if you have been unemployed for 8 months, you would put 0 in the years box and 8 in the months box).

Years

Months

10. What is your best estimate of your total PERSONAL income before taxes and deductions, from all sources during the past 12 months?

- Income loss
- No income
- Less than \$5000
- \$5000, or more but less than \$9,999
- \$10,000, or more but less than \$14,999
- \$15,000, or more but less than \$19,999
- \$20,000, or more but less than \$29,999
- \$30,000, or more but less than \$39,999
- \$40,000, or more but less than \$49,999
- \$50,000, or more but less than \$59,999
- \$60,000, or more but less than \$69,999
- \$70,000, or more but less than \$79,999

- \$80,000, or more but less than \$89,999
- \$90,000, or more but less than \$99,999
- \$100,000, or more but less than \$109,999
- \$110,000, or more but less than \$119,999
- \$120,000, or more but less than \$129,999
- \$130,000, or more but less than \$139,999
- \$140,000, or more but less than \$149,999
- \$150,000 or more
- Don't know
- Not applicable

11. Do you have any interest or are you willing to apply for a different job other than the one(s) you are currently in?

- Yes
- No
- Not applicable

12. We are interested in knowing about whether people who are currently employed are making what they feel they are worth. How much are you currently making per year and what would be your desired salary?

Current

Desired

13. How well do you feel you fit your current job based on your experience and education?

- I have all the skills and training I need to do my job
- I have more skills than this job requires
- I need more training to do my job effectively
- Not applicable

### **SKILLS ON THE JOB**

**We are now interested in learning a little bit about the skills you currently possess. What employable skills do you feel you currently have?**

**(Please answer questions 14a to 14f, with regards to your employable skills. We provide you with the skill set, an example, and skill options. Please select any skills from the options that you feel apply to your employable abilities).**

14a. Reading Skills:

For example, an airline sales agent reads notices on a computer screen, such as special handling requirements or weather information.

Please choose all that apply:

- Do you scan written materials for information and/or overall meaning
- Do you read materials to understand, learn, critique or do evaluation
- Do you analyze and synthesize information from multiple sources for or from complex and lengthy text
- Other, please specify:

14b. Document Use Skills:

For example, a bricklayer interprets blueprints to determine the height, length and thickness of walls.

Please choose all that apply:

- Do you read signs, labels or lists
- Do you read and understand information on graphs or charts
- Do you enter information into forms
- Do you create or read schematic drawings
- Other, please specify:

14c. Numeracy Skills:

For example, payroll clerks monitor vacation entitlement to prepare budget and scheduling forecasts.

Please choose all that apply:

- Do you make calculations
- Do you make measurements
- Do you perform scheduling, budgeting or accounting activities
- Do you analyze data
- Do you make estimations
- Other, please specify:

14d. Writing Skills:

For example, human resources professionals write recommendations on issues such as workplace health and safety.

Please choose all that apply:

- Do you write to organize or record information
- Do you write to inform or persuade
- Do you write to request information or justify a request
- Do you write an analysis or comparisons
- Other, please specify:

14e. Computer Use Skills:

For example, telephone operators use customized software to scan databases for telephone numbers or long distance rates.

Please choose all that apply:

- Do you use different forms of technology such as cash registers or fax machines
- Do you use word processing software
- Do you send and receive emails
- Do you create and modify spreadsheets
- Do you navigate the internet
- Do you use tablets or smart phones for things like texting, instant messaging, emailing etc.
- Other, please specify:

14f. Which of the skills you selected, from 14a to 14e, are not used at your current place of employment?

Please choose all that apply:

- Scan written materials for information and/or overall meaning
- Read materials to understand, learn, critique or evaluate
- Analyze and synthesize information from multiple sources for or from complex and lengthy text
- Read signs, labels or lists
- Understand information on graphs or charts
- Enter information into forms
- Create or read schematic drawings
- Make calculations
- Take measurements
- Perform scheduling, budgeting or accounting activities
- Analyze data

- Make estimations
- Write to organize or record information
- Write to inform or persuade
- Write to request information or justify a request
- Write an analysis or comparison
- Use different forms of technology such as cash registers or fax machines
- Use word processing software
- Send and receive emails
- Create and modify spreadsheets
- Navigate the internet
- Other, please specify:

**TRAVELLING TO WORK**

**We would like to know a little bit about how much time you spend getting to work each day. Thinking about your primary place of employment...**

15. Do you commute to your place of employment?

- Yes, I commute
- No, I work from home
- Not applicable

16. Approximately how many kilometers is it from your house to your place of employment, one way? If you work from home please place 0 in the space below.

17. Approximately how many minutes does it take you to travel to work, one way? (Please note that the system will accept a range, i.e. 20-35)

18. How many kilometers would you be willing to commute, one way, for a higher pay rate?

**FOR RESPONDENTS CURRENTLY NOT WORKING**



**If you are currently unemployed, we would like know more about your situation (If this section does not apply to you please skip to question 27)**

19. How long have you been unemployed? (For example, if you have been unemployed for 8 months, you would put 0 in the years box and 8 in the months box).

Years

Months

20. Do you have any interest in entering or re-entering the workforce full-time?

- Yes
- No
- Not applicable

21. If you are currently looking for work, would this be your first time entering the workforce in a full-time/long term position? In other words, have you had a full-time, long term job before?

- Yes
- No
- Not applicable

## **SKILLS YOU HAVE ACQUIRED**

**We would now like to learn a little bit about the skills you feel you currently possess? Thinking back to your previous jobs, answer the questions below.**

**(Please answer questions 22a to 22e, with regards to your employable skills. We provide you with the skill set, an example, and skill options. Please select any skills from the options that you feel apply to your employable abilities).**

22a. Reading Skills:

For example, an airline sales agent reads notices on a computer screen, such as special handling requirements or weather information.

Please choose all that apply:

- Have you scanned written materials for information and/or overall meaning
- Have you read materials to understand, learn, critique or do evaluation
- Have you analyzed and synthesized information from multiple sources for or from complex and lengthy text
- Other, please specify:

22b. Document Use Skills:

For example, a bricklayer interprets blueprints to determine the height, length and thickness of walls.

Please choose all that apply:

- Have you read signs, labels or lists
- Have you read and understand information on graphs or charts
- Have you entered information into forms
- Have you created or read schematic drawings
- Other, please specify:

22c. Numeracy Skills:

For example, payroll clerks monitor vacation entitlement to prepare budget and scheduling forecasts.

Please choose all that apply:

- Have you made calculations
- Have you made measurements
- Have you performed scheduling, budgeting or accounting activities
- Have you analyzed data
- Have you made estimations
- Other:

22d. Writing Skills:

For example, human resources professionals write recommendations on issues such as workplace health and safety.

Please choose all that apply:

- Have you written to organize or record information
- Have you written to inform or persuade
- Have you written to request information or justify a request
- Have you written an analysis or comparisons
- Other, please specify:

22e. Computer Use Skills:

For example, telephone operators use customized software to scan databases for telephone numbers or long distance rates.

Please choose all that apply:

- Have you used different forms of technology such as cash registers or fax machines

- Have you used word processing software
- Have you sent and received emails
- Have you created and modified spreadsheets
- Have you navigated the internet
- Have you used tablets or smart phones for things like texting, instant messaging, emailing etc.
- Other, please specify:

23. What resources do you use in order to search for a job? [Note: this question can be tailored to resources within the skillshed area]

Please choose all that apply:

- Attend job fairs
- Government job banks
- John Howard Society
- Online job search engines (i.e. Monster, Workopolis, etc.)
- Other websites (i.e. Kijiji, Craigslist, etc.)
- Talk to friends and family about job opportunities
- [Local employment resource]
- [Local employment resource]
- Not applicable
- Other, please specify:

24a. If you are thinking about entering or re-entering the workforce, how far would you be willing to commute to work, one way? Please list the distance in kilometers.

24b. If you are thinking of entering or re-entering the workforce, what is the maximum time (in minutes) you would be willing to spend travelling to work one way?

25. If you were offered a job in your field that paid a lower salary than what you desired, but it was closer to home, would you consider taking it?

- Yes
- No

Don't know

26. What would be your desired annual salary to enter or re-enter the workforce? Please round to the closest whole number.

### VOLUNTEERISM

(Whether you are employed or unemployed, please answer the following questions, if you do not volunteer and these questions are not applicable to you please skip forward to question 30)

27. Do you volunteer?

Yes

No

28a. About how many hours a month do you volunteer, on average. If you do not volunteer, please place a zero (0) in the box below.

28b. If you feel comfortable, please share with us the name of the organization(s) you volunteer with (you may list any/all volunteer positions you currently hold):

29a. Do you feel at least some of the skills you listed, in this survey, are used at your volunteer position?

Yes

No

29b. Please explain what skills are utilized at your volunteer position:

### GENERAL QUESTIONS

**Please answer these questions regardless of your employment status.**

30. Now, thinking about the last time you searched for a job (if you are currently employed) or your current job search experiences (if you are not currently employed), please share with us some of the obstacles and challenges you have or are currently experiencing?

31. What do you feel you would require in terms of training and education in order to obtain the job you desire?

32a. Would you be willing to earn less if you were able to work closer to home?

- Yes
- No
- Not applicable

32b. If you answered yes to 32a, what would be the minimum annual salary you would require to work locally?

**Thank you for your feedback. We very much appreciate your time and effort in answering these questions.**

## **Skillshed Employer Survey - Template**

### **INFORMATION ABOUT THE EMPLOYER**

**First, we would like to get to know your business and gather some details about your employees and the employee structure of your business.**

1. What is the name of your business/company/organization?

2. What are the first 3 characters of your business's postal code? (i.e., L9L)

3. What industry is your business/company/organization in?

- Accommodation, Food Services, and Hospitality
- Agriculture, Fishing and Hunting
- Construction
- Finance and Insurance
- Forestry and Forest Industries
- Government
- Health Care and Social Assistance
- Information and Cultural Industries
- Licensed Trades (i.e. Plumber, Electrician, etc.)
- Mining, Quarrying, and Oil and Gas Extraction
- Not-For-Profit
- Professional, Scientific, and Technical Services
- Professional Services (i.e. Legal, Accounting, Real Estate, etc.)
- Public Administration
- Transportation and Warehousing
- Waste Management and Remediation Services
- Other

4. What is your job title?

5. Other than yourself, how many full-time employees does your business/company/organization have?

6. Other than yourself, how many part-time employees does your business/company organization have?

7. How many of your employees are salaried and how many are paid hourly?

 Salaried Hourly

8. How many hours a week do your part-time and full-time employees work?

 Part-time Full-time

9. How many of your employees are contractual and how many are seasonal? If this does not apply to you please skip to the next question.

 Contractual Seasonal

10a. Do you have unionized employees?

- Yes
- No
- Not applicable

10b. If you answered yes to 11a, approximately what percentage of your employees are unionized? If none of your employees are unionized, please place a zero (0) in the box below.

11a. Do you have employees on layoff? (If you answer yes, please answer questions 11b & 11c, if you answered no please move on to question 12)

- Yes
- No
- Not applicable

11b. If you answered yes to question 12a, how many employees are on layoff?

11c. If you answered yes to question 12a, how long is the average layoff term? (Please state this in terms of months).

12. What is your average starting wage per hour at your business/company/organization?

 Per hour

## **SKILLS NEEDS**

**Which of the following skills do you need from your workforce?**

**(Please answer questions 13a to 13f with regards to desired skills sets. There is an example provided for each skill set. Please select any options that are applicable to each skills desired from your workforce).**

13a. Reading Skills:

For example, an airlines sales agent reads notices on a computer screen, such as special handling requirements or weather information.

Please choose all that apply:

- You would like your employees to be able to scan written materials for information and/or overall meaning
- You would like your employees to be able to read materials to understand, learn, critique or evaluate
- You would like your employees to be able to analyze and synthesize information from multiple sources for or from complex and lengthy text
- Other, please specify:

13b. Document Use Skills:

For example, a bricklayer interprets blueprints to determine the height, length and thickness of walls.

Please choose all that apply:

- You would like your employees to be able to read signs, labels or lists
- You would like your employees to be able to understand information on graphs or charts
- You would like your employees to be able to enter information into forms
- You would like your employees to be able to create or read schematic drawings



- Other, please specify:

13c. Numeracy Skills:

For example, payroll clerks monitor vacation entitlements to prepare budget and scheduling forecasts.

Please choose all that apply:

- You would like your employees to be able to make calculations
- You would like your employees to be able to make measurements
- You would like your employees to be able to perform scheduling, budgeting or accounting activities
- You would like your employees to be able to analyze data
- You would like your employees to be able to make estimations
- Other, please specify:

13d. Writing Skills:

For example, Human resources professionals write recommendations on issues such as workplace health and safety.

Please choose all that apply:

- You would like your employees to be able to write to organize or record information
- You would like your employees to be able to write to inform or persuade
- You would like your employees to be able to write to request information or justify a request
- You would like your employees to be able to write an analysis or comparison
- Other, please specify:

13e. Computer Use Skills:

For example, telephone operators use customized software to scan databases for telephone numbers or long distance rates.

Please choose all that apply:

- You would like your employees to be able to use different forms of technology such as cash registers or fax machines
- You would like your employees to be able to use word processing software
- You would like your employees to be able to send and receive emails
- You would like your employees to be able to create and modify spreadsheets
- You would like your employees to be able to navigate the internet
- Other, please specify:

13f. Please provide us with any other comments you may have on the desired skills from your workforce (If you currently do not have any employees, please write 'not applicable' below).

14. Approximately what percentage of your employees come from each of the following areas? Please choose all that apply and provide a comment:

- [Local boundary designation (i.e, neighbourhood, township, parish, etc.)]
- [Local boundary designation (i.e, neighbourhood, township, parish, etc.)]
- [Local boundary designation (i.e, neighbourhood, township, parish, etc.)]
- [Local boundary designation (i.e, neighbourhood, township, parish, etc.)]
- [Local boundary designation (i.e, neighbourhood, township, parish, etc.)]
- [Local boundary designation (i.e, neighbourhood, township, parish, etc.)]
- [Local boundary designation (i.e, neighbourhood, township, parish, etc.)]
- [Local boundary designation (i.e, neighbourhood, township, parish, etc.)]
- Other, please specify:

**TRAINING AND RECRUITING EMPLOYEES**

**We would now like to ask you some questions about training and recruiting of employees**

15a. Are you trying to fill a position in your business/company/organization?

- Yes
- No
- Not applicable

15b. If you answered “yes” to the question above, how many positions are you currently trying to fill?

16. Now, thinking about your last series of hiring, about how long, on average, does it take to fill a position once it has been created, or vacated?

17. Please indicate what occupations you are having difficulty filling and retaining?

18. Thinking about all the jobs that you offer in your place of employment, which jobs do you think are the hardest to fill?

19. In the last year have you had any changes to the size of your workforce?

- Increased the number of employees
- Decreased the number of employees
- My workforce has stayed about the same size over the last year
- Not applicable

20. Thinking about the next five years are you looking to change the size of your workforce?

- Increased the number of employees
- Decreased the number of employees
- My workforce has stayed about the same size over the last year
- Not applicable

21. What are the methods your organization uses to recruit employees?  
Please choose all that apply:

Please choose all that apply:

- Attend job fairs
- Government job banks
- John Howard Society
- Online job search engines (i.e. Monster, Workopolis, etc.)
- Other websites (i.e. Kijiji, Craigslist, etc.)
- Talk to friends and family about job opportunities
- [Local employment resource]
- [Local employment resource]
- Not applicable
- Other, please specify:

22. Please rate the availability of services in the region of Durham:

	1 Poor	2	3	4 Average	5	6	7 Excellent	Don't know
Apprenticeship training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Colleges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cultural facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Daycare affordability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Daycare availability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electrical power	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing affordability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing availability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medical services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other utilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Private career colleges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public transportation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recreation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Roads	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Secondary schools	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Universities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. Please rate the quality of services in the region of Durham:

	1 Poor	2	3	4 Average	5	6	7 Excellent	Don't know
Apprenticeship training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Colleges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cultural facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Daycare affordability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Daycare availability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electrical power	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing affordability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing availability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medical services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other utilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Private career colleges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public transportation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recreation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Roads	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Secondary schools	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Universities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. Please rate the availability and ease with which you are able to fill company positions in the following categories:

	1 Poor	2	3	4 Average	5	6	7 Excellent	Don't know
Skilled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Semi-skilled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unskilled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clerical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. Now, thinking about the business climate of your community please rate the following attributes of your community with respect to the community business climate:

	1 Poor	2	3	4 Average	5	6	7 Excellent	Don't know
Support for businesses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
communication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of Life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**NEXT STEPS**

**26. We would now like to get your thoughts of the next stages of employment for this region.**

27. What education and/or training do you provide to ensure your employee becomes a “good fit” for your company?

28. Overall, what are the positive aspects of hiring in Durham Region?

29. What are the negative aspects of hiring in the region of Durham?

**Thank you for your feedback. We very much appreciate your time and effort in answering these questions.**

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<sup>38</sup> *Ibid.*, 28, p. 6

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<sup>41</sup> Iowa Workforce Development. (2010). *Skillshed Analysis: Guide to Identifying Your Workforce Skills*.

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<sup>43</sup> Occupational skills refer to the technical and job-specific abilities that relate directly to one's performance (i.e., analytic or managerial skills). These are different than both basic skills, which are formed during one's elementary and middle school education (i.e., literacy and numeracy), and soft skills, which are related to one's personality and character (i.e., leadership and teamwork ability; Iowa Workforce Development, 2011b).

<sup>44</sup> *Ibid.*, 29, p. 3.

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<sup>46</sup> The Iowa Workforce Development (2012) identifies a respondent as having a mismatch of skills if (1) they have completed more years of education than is required for their current position, (2) they have “significant technical skills” that are not being used in their current position, or (3) they have had a higher salary at a previous job (p. 13).

<sup>47</sup> *Ibid.*, 39, p. 2.

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