

The 12-Step Labor Market Survey Methodology in Practice: A Case Example

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Labor market survey (LMS) is a strategy used in rehabilitation and disability services to collect information about local labor market conditions to provide data for decision-making and recommendations affecting clients/evaluatees. Barros-Bailey (2011a, in press) introduced the 12-Step LMS Model. This article takes a sample case through each of the steps to illustrate the model's use in practice.

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Knowing how occupational information, studies, and databases are designed, and for what purposes, becomes important to understanding the need for labor market survey (LMS) in rehabilitation and disability services. Many large scale databases and studies are designed for workforce development purposes (Bureau of Labor Statistics, 2011) – that is, to make broad generalizations about data as they apply to large national or regional and policies associated with those labor markets (econometric application; Friedman, 2005), not for data as they apply to the single individual (ergometric and ergonomic applications; Barros-Bailey, 2012b; Cunningham, 1971), particularly an individual with a disability (Occupational Information Development Advisory Panel, 2010). The more abstract data gathered by descriptors, measures, and scales that are developed for econometric purposes may result in confounded data for ergometric and ergonomic applications – data that is also generally highly aggregated. This is potentially problematic when data are applied to an individual with a disability in a specific geographical location where ergometric and ergonomic data collected about the relevant labor market may better suit that purpose. Indeed, a Special Note in the *Dictionary of Occupational Titles* ([DOT]; U.S. Department of Labor, 1991) states,

Occupational information contained in the revised fourth edition DOT reflects jobs as they have been found to occur, but they may not coincide in every respect with the content of jobs as performed in particular establishments or at certain localities. DOT users demanding specific job requirements should supplement this data with local informa-

tion detailing jobs within their community (p. xiii).

The U.S. Department of Labor's replacement for the DOT for econometric data needs is the Occupational Information Network (O*NET). Contact with the O*NET Resource Center (personal communication, November 14, 2011) identified a similar special notice for the current database that states, "It should be noted that O*NET occupational information is composite information from many jobs and therefore is not intended to describe a particular job" (U.S. Department of Labor, 2011, section 1, para. 1). In the rehabilitation profession, the collection of ergometric and ergonomic occupational data of a local or specialized labor market about positions, jobs, and occupations based on specific human function or other data specific to the needs of a single individual is what is referred to as a labor market survey (LMS). Specifically, LMS has been defined as "a survey methods strategy to collect qualitative and/or quantitative data for a small population census or sample about an identified labor market in order to draw inferences to the client/evaluatee (N=1)" (Barros-Bailey, 2011a; in press, section 3, para. 4). Thus, the use of LMS in practice provides the rehabilitation professional with a valuable tool to identify resources, derive information about the labor, or to collect data for planning, decision-making, and conclusions for the individual receiving case management, counseling, job placement, evaluation, or other services.

Neulicht, Gann, Berg, and Taylor (2007), Barros-Bailey (in press), and Barros-Bailey and Heitzman (2011) did not find a commonly-accepted LMS methodology in the literature although the liter-

ature does provide some checklists and formats for the use of LMS in job placement (Gilbride & Burr, 1999) and forensic applications (Berens & Weed, 2010; Weed & Field, 2001; Weed & Taylor, 1990). Barros-Bailey (2011a; in press) identified that a LMS is a survey strategy within research methods and should be understood given that context. Adapting best practices of survey methodology promulgated by the American Association of Public Opinion Research (2009), Barros-Bailey (2011a, in press) proposed a 12-Step methodology for performing an LMS. These steps include:

1. Identifying Research Question(s)
2. Developing Survey Questions (Items)
3. Training the Interviewer(s)
4. Selecting the Population: The Sampling Frame
5. Taking a Census vs. Sample
6. Deciding on Probabilistic vs. Nonprobabilistic Sampling
7. Constructing and Testing the Instrument
8. Collecting and Preparing the Data
9. Analyzing Qualitative and Quantitative Data
10. Summarizing the Data
11. Reporting the Data
12. Integrating Labor Market Survey Data with Other Labor Market Data

This article seeks to take the rehabilitation professional through an example using these 12 steps to develop LMS using one possible research design given the purpose of the LMS articulated in the case example.

The Case Example

This case example is modified from an actual LMS that was performed in a medium-sized city using the 12-Step LMS Model. Characteristics about the case and facts have been changed for illustrative and confidentiality purposes to protect the identity of the individual being described.

Riley is an electrician who sustained a back injury as a result of a fall from a 10-foot ladder after five years of working as a journeylevel electrician. Riley's neurosurgeon and physiatrist both provided a restriction of no lifting over 45 pounds up to 1/3 of the workday in a work release. Now that Riley has completed physical therapy, it is time to consider job placement options because her job is no longer available with the employer at the time of injury that went out of business during Riley's recovery. Joe, the rehabilitation professional, is helping Riley determine what her placement options might be, including what she could earn if she returned to work as an electrician with a new em-

ployer. Joe has been viewing job opportunities through a variety of online sources; but, in his experience, a LMS may yield better information to help Riley make employment or training decisions. Therefore, Joe uses the 12-Step LMS Model to seek information to advise Riley and to teach her job seeking and placement skills (Gilbride & Burr, 1993).

Step 1: Identifying the Research Question(s)

Following the 12-Step LMS Model, the research questions Joe develops for his LMS contain the following components: "the *what* (overall purpose), the *who* (scope of the sampling frame per identified occupation, etc.), and the *where* (sampling frame delimiter by geographical area)" (Barros-Bailey, in press, section 8, para. 2). An important consideration in developing research questions is whether the questions the rehabilitation professional seeks to answer are feasible through the LMS query. Some questions may be appropriately addressed through other means, such as a review of the literature or other primary or secondary data sources. Specifically, Joe's research questions were:

- 1) What is the recent, current, and projected labor market for journeylevel electricians with electrical contractors in the X metropolitan statistical area?
- 2) What wages are paid for experienced journeylevel electricians being hired in X metropolitan statistical area?
- 3) What are the physical demands of the work activity performed by journeylevel electricians in the identified labor market?

Step 2: Developing the Surveys Questions (Items)

Simply put in the language of the practitioner, survey questions (referred to as "items" in research) are the questions on the form (questionnaire, or called an "instrument" in research) that rehabilitation professionals use to contact employers to collect desired data. Fowler (2009) recommends survey questions use standard grammar and syntax and be: short; concrete and specific; devoid of jargon; checked for hidden biases; careful to avoid personal questions; and, inclusive of only one thought (avoid confounding words or phrases). Additional recommendations as to survey question development for LMS could be located in the literature (Barros-Bailey, in press). These questions could be open- or close-ended (Arnon & Reichel, 2009), therefore producing qualitative or quantitative responses (Fink, 2009).

An important consideration in developing instrument items is to try to keep the survey questions about the *demands* or *requirements* of work versus the *abilities* of the individual. This will help to minimize the intro-

duction of bias and, therefore, error on the part of the respondent. Barros-Bailey's reference in the LMS definition to "drawing inferences to the client/evaluee (N=1)" (2011a; in press, section 3, para. 4) was carefully worded to capture the concept that good data helps those making decisions to bringing the constellation of all their sources together to make such decisions. However, it is not up to those providing the answers to the survey to decide for the rehabilitation professional if the client/evaluee could or should do x or y, but the onus rests upon the rehabilitation professional to obtain such data from the respondents to arrive at such conclusions. For example, assume Joe wants to know whether the 45 pounds lifting restriction may be a factor in Riley's return to work. If Joe asks employers "Would someone who has a 45 pound lifting restriction be able to work as a journeylevel electrician?" how does Joe know whether the respondent's answer is based upon the work activity requirements for that particular employer or upon the respondent's assumptions and bias against someone who s/he perceives as restricted? By rephrasing the question and breaking it apart into: "What is the heaviest item lifted?" and "How frequently it is lifted?" the rehabilitation professional focuses on the work activity and minimizes the potential introduction of respondent bias, thus collects better data to perform the person-work activity match. If measuring employer bias and attitudes towards people with disabilities is one of the purposes of the study, research shows that this kind of information is more validly obtained through other strategies rather than telephonic or face-to-face methods of data collection (Fowler, 2009). In Joe's case, the items included on his survey instrument were:

1. Do you hire experienced journeylevel electricians?
2. [IF NOT] Do you know who does hire for these positions?
3. [IF SO] Are you hiring now?
4. Have you hired anyone in the last six months?
5. What qualifications does the work for these positions require?
6. Where/Are these positions part-time or full-time?
7. Where/Are these positions year-round or seasonal?
8. Do you anticipate hiring in the next six months?
9. What is the hourly rate for a commercial electrician with 5 years of experience?
10. What is the heaviest item a journeylevel electrician lifts with your company?
11. How often might the electrician lift this item?

Step 3: Training the Interviewer(s)

A rehabilitation professional could develop the most valid LMS instrument possible containing valid survey questions. However, but if the person making the calls or visits to employers is not trained, the effort in the development of the instrument is lost and data quality could be compromised. The approach, demeanor, and first impression cast by the interviewer strongly impact the validity of the survey (Fink, 2009; Fowler, 2009). Fink (2009) advanced that "... attitude toward the survey will influence the results. If the interviewer does not expect much and sends this message, the response rate will probably suffer" (p. 40). Therefore, training of interviewers is an important part of the LMS process. Interviewers should be taught to be friendly, introduce why they are calling, what they are doing, and why. In our example, Joe opted to have a colleague be the interviewer, someone who was well-versed in the purpose of LMSs, the do's and don'ts of interviewing, and who had previous experience as an interviewer and surveyor in rehabilitation practice.

The point of contact for the employer should be identified beforehand, such as the individual doing the hiring, job incumbent, or other relevant respondent depending on the information sought. Once identifying that the appropriate point of contact has been reached, an introductory greeting should be simple such as, "My name is Joe and I am trying to learn about the local labor market for journeylevel electricians for a client I am working with. Could I ask you a few questions about this?" The importance of the respondent's answers should be imparted. Although the interviewer should follow the interview script, given the nature of the LMS calls, there should be some flexibility in the flow of the call.

Step 4: Selecting the Population: The Sampling Frame

The sampling frame (generally called the "contact list" in practice) for the electrician example in this article covers a metropolitan area consisting of nearly a half million people. This includes four cities of over 50,000 people each and another 21 small, rural communities with generally less than 1,000 inhabitants each. Ultimately, Joe's considerations when selecting the sampling frame included:

- Who could respond to his survey questions to help answer the research questions?
- Can he identify the scope of the population or is it difficult to define?
- Will he call employers hiring journeylevel electricians (top down), or will he call individual electricians (e.g., bottom up) such as getting a list of all

those licensed by the state for the geographical area considered?

- Why are the sources selected the best to call?
- How is he going to find the sources to include in the sampling frame?

After considering the sources for developing the sampling frame that are available in the private (e.g., infoUSA, SkillTRAN) and public (e.g., Secretary of State, Occupational Licensing Bureau) sectors, the sources Joe selected for the LMS example sampling frame were online yellow pages. He found these to have the most comprehensive list of electrical contractors meeting the elements identified in the research questions. However, even these had different sources (e.g., dexknows, yellowpages), so Joe used a variety of these sources to compile his sampling frame knowing that the way they each collected their listings, kept them updated, etc. varied. Other sources could also have been selected depending on the research questions. Neulicht et al. (2007) provide a variety of examples of sources identified in their study that are used by rehabilitation professionals in performing LMSs.

Step 5: Taking a Census v. Sample

If all potential sources for a job are including and called in the sampling frame, and that frame is inclusive of the *who* referred to in the research question, then the LMS is a census of the targeted population. If the sampling frame is of such length that it is improbable that the rehabilitation professional could or should contact all sources in the geographical area, or there are other resource or logistical considerations limiting how many of the contacts could be called from the sampling frame, then the rehabilitation professional should select a sample. Daniel (2012) identifies five guidelines to assist in decision making of whether to perform a census or a sample: 1) objectives of the study; 2) ethical considerations; 3) nature of the population; 4) availability of resources; and, 5) research design considerations.

It is important to distinguish between a population census and a sample in LMS because this affects the resulting data analysis and generalizability (external validity). Descriptive statistics (e.g., means, medians) are used for censuses and samples. Inferential statistics (e.g., regressions, errors of the estimate) could be used when a sample is taken and there is an attempt to generalize the data to the entire target population or to compare groups within that population.

Joe's sampling frame consisted of 50 employers that represented the entire known population of electrical contractors within X metropolitan area; therefore, it was decided that the LMS would be a census for the designated geographical area of interest. However, if Joe's sampling frame had been in a much larger metropolitan area, like New York City, and contained all

electrical contractors for that area, the LMS would likely have needed to be a sample of that frame rather than a census because the resource issues would likely limit Joe's ability to perform a census. By changing the occupation from that of electricians to that of polysomnographic technicians (who work in sleep centers) in New York City, the sampling frame for the new occupation, regardless of the fact that it remains in the same large metropolitan location, would likely generate a much smaller list (sampling frame) and, consequently, result in the rehabilitation professional performing a census of that occupation. Therefore, the kind of occupation being studied and the geographical location are two important considerations in making a decision of whether a census or a sample of the target population should be undertaken.

Step 6: Deciding on Probabilistic v. Nonprobabilistic Sampling

Daniel (2012) defines probabilistic sampling as "a sampling procedure that gives every element in the target population a known and nonzero probability of being selected" (p. 259). The main types of probabilistic sampling are: simple, systematic, stratified, quota, cluster, multistage, and multiphase (Daniel, 2012; Fink, 2009; Fowler, 2009). Simple random sampling is the most likely type of sampling that could be used with LMSs completed in rehabilitation practice because of the nature of the research questions that address small population samples and the resulting sampling frames.

A simple random sample requires that the sampling frame be numbered and alphabetized, which is a simple task to perform with spreadsheet software. Simple random sampling is also the most desired of all sampling methods because each employer or individual has an equal chance of being selected (Fowler, 2009). Once the numbered and alphabetized sampling frame is collected, a simple random sample could be drawn from the sampling frame. Entering the terms "random number calculator" into a search engine or using a variety of retail spreadsheet or shareware/freeware software applications generates a random number sequence to determine which entries to contact and in what order to make the calls.

Nonprobabilistic sampling is defined by Daniel (2012) as "a sampling procedure that does not give every element in the target population a known and nonzero chance of being selected" (p. 258). Nonprobabilistic sampling techniques most often cited are: availability (convenience), simple or critical case, snowball, cluster, focus groups, and subject matter expert (Daniel, 2012; Henry, 1990). There are a variety of purposes for the use of LMS, such as in exploratory research where the use of nonprobabilistic sampling is most appropriate. Purposive sampling, for example, could be

used to determine the parameters of a hidden or emerging occupation.

In the New York City labor market scenario, should Joe have used a sample instead and wished to determine the sample size, he could use a power analysis calculator. Several such calculators are available free online through a search (Barros-Bailey, in press). Assuming a $N=300$ for the target population, given a confidence interval (CI) of .9 and a .09 margin of error, the sample size for the New York City LMS would be 63 using such a calculator. However, Joe decided to perform a census, so he did not need to concern himself with what kind of sampling he was to perform with his LMS. Although it is beyond the scope of this article to discuss in detail probabilistic v. nonprobabilistic sampling methods in LMS, emerging literature (Barros-Bailey, in press, 2012a) suggests that either or both types of sampling may be appropriate depending on the purpose of the LMS.

Step 7: Constructing and Testing the Instrument

Survey questions are an important part of an instrument, but do not necessarily compose the entire questionnaire. Other components could include a short section with background/contextual data about the client/evaluee that may be relevant to the purpose of the survey, contact information for the respondents, areas designated for responses, comments and/or interviewer observation sections, and a response rate calculator to summarize all responses.

There are a variety of sources existing in the contemporary literature regarding instrument design, construction, and testing (Bourque & Fielder, 2003; Fink, 2009; Fowler, 2009). In practice, rehabilitation professionals could test the instrument with a small number of potential respondents from the sampling frame to refine and adjust the instrument before full data collection commences. If the instrument has been used previously by the experienced rehabilitation professional or others to collect valid and reliable data, the need for piloting it is arguably minimized. Joe elected to test the instrument with two respondents to allow him to determine how well the questions performed and if there existed idiosyncrasies about the target population that might affect his survey design and data collection.

Step 8: Collecting and Preparing the Data

Although Joe started with a population of $N=50$, after an afternoon of calls that were summarized in his response rate calculator (Barros-Bailey, in press), he learned that not all entries on the sampling plan were viable contacts: 6 were disconnected numbers, 2 were for the same company with different names and numbers, and 5 companies were one-person operations

that did not have employees to make his questions relevant. Due to these factors associated with the sampling frame, Joe's adjusted population became $N=38$. These corrections are referred to in research as ineligibility/incidence rate adjustments (Daniel, 2012).

Not all employers answered all of Joe's survey questions; hence, the responses for each item about wage rates differed from the overall responses. Joe must decide how to manage these data discrepancies without compromising data integrity and sought guidance in the literature to address potential adjustment considerations. Therefore, for this particular LMS, Joe calculated descriptive statistics for each question according to the number responding to the individual question and elected not to smooth the data given the fact that it was such a small employer list.

Step 9: Analyzing Qualitative and Quantitative Data

For the most part, particularly given the small nature of the dataset that results from a LMS as it is used in rehabilitation and disability services, it is safe to say that the majority of the LMS data will be quantitative in nature and use mainly descriptive statistics involving distribution (e.g., percentages, frequencies), central tendencies (means, medians, modes), dispersion (e.g., ranges, standard deviations), and errors. Joe's instrument had one question designed to generate data about the names of other employers hiring for journeylevel electricians. Quantifying the responses and performing descriptive or inferential statistics on the answers collected from this item would be meaningless in Joe's data analysis. Therefore, the rehabilitation professional must understand the limitations and delimitations of quantification of qualitative data.

When responding to the survey question about wages, employers in our case example provided additional qualitative information. Joe's instrument allowed him to record the unanticipated responses in his comments section. One respondent posited, "Right now we are paying \$13 per hour because the economy is so bad. In 2008 it was closer to \$25 per hour." Another employer said, "The salary has decreased over the past few years. Possibly \$20-\$25 per hour now." A third contact noted, "There is no work right now. If the economy were better, wages would be much closer to the mid \$20s." Nestled in the respondents' responses to a quantitative question was qualitative data that provide information to help show the direction of a trend and confirm or dispute other survey responses (such as those involving recent, current, or anticipated hiring) or secondary data derived from government and private publications.

Step 10: Summarizing the Data

Of the adjusted sampling frame, information was obtained from $n=12$ on the afternoon the LMS calls were made. This is a 32% response rate. Research suggests that Joe could improve his response rate by 25% to 33% by calling back again (Fowler, 2009). Given he was to meet with Riley the following day, he elected not to try to improve his response rate so he had the opportunity to summarize and analyze the data and put it together in a report.

After Joe adjusted the ineligibility/incidence rate to a population of 38 given his $n=12$ responses, he used a power analysis calculator to determine that he would have needed an $n=27$ if he wished to obtain a confidence interval (CI) of .9 and a .09 margin of error. A CI is defined by the *Encyclopædia Britannica* as "... a range of values ... within which the parameter is most likely to be located ... commonly chosen ... within a 95 or 99 percent probability ..." (2012, para. 1). His actual response rate increased the margin of error from .09 to .21. For the purpose the LMS was being used, Joe decided he could live with this error level although he knew that call backs might result in additional responses or ineligibility/incidence rate adjustments and an improved margin of error. Note that Joe's error rate was not adjusted for finite population correction (FPC) that would make the radius around the CI narrower and, thus, the sample size more precise given the small population of electricians in the geographic area in his LMS (Hardy, 2011a, para. 2). The FPC was introduced in 1918 (Isserlis) as an adjustment to the standard error when sampling is performed with finite populations, such as is the case with LMS where the sampling fraction may be greater than 5% of the population; that is, if the sampling frame is 128 employers and a simple random sample is taken of 30 of those establishments (23% of the total population), then the FPC adjustment could be calculated to adjust the standard error.

In answer to Joe's survey questions, he summarized his data as follows: No employers had hired in the last six months. Some respondents hoped that business conditions would improve so they could hire in the future, although none had plans to do so when called. Three employers added they would rehire laid off employees before seeking new ones in the competitive labor market. When they hired, most employers sought full time seasonal electricians, although two often hired part time. The qualifications mentioned most often by employers were five years of experience and an electrician's occupational license, with secondary mentions of experience in residential, commercial, and industrial installation, service, or repair.

There were two other results of the LMS that Joe summarized for Riley. Using an online descriptive statistics calculator located through a search engine query, Joe used the wage rate responses from the 10

employers answering this question to calculate an hourly mean wage of \$19.10 per hour with a standard deviation of \$3.20 per hour and a standard error of measure of \$1.01 per hour. The range was \$13 to \$25 per hour and the median was \$18.75 per hour. The 95% CI was \$16.81 to \$21.39 per hour. For the question about the weight of items carried, 90% of employers reported an electrician's tool belt could weigh up to 60 pounds depending on what was included in the belt. However, generally the belt did not weigh over 30 pounds and lifting at the higher weight was generally performed by an apprentice working alongside the journeylevel electrician.

Step 11: Reporting the Data

Joe decided to report his LMS data numerically and narratively because he believed this was the best way for Riley to understand the results of his study. Although the data could conceivably be presented graphically, because of the nature of the small census or sample and his audience, Joe did not believe graphics would provide an equally effective delivery of his results. If Joe were putting the data together for clients who might be limited functionally or linguistically, he would consider these factors when deciding how the data were to be reported.

Ethical implications must be considered in Joe's data reporting. Rehabilitation professionals should familiarize themselves with the most elementary precepts of research ethics in their codes of ethics as well as those stipulated by government sources in performing LMS and understand if and what applies to LMS. Ethical standards cover making research data available to other researchers with assumed equivalent training and experience for their re-analysis (Barros-Bailey, 2011b). If Joe's colleague, Carla, was evaluating Riley's earning capacity for the client's workers' compensation insurance carrier and were to re-examine Joe's raw data, she would be held to the same professional and governmental ethical principles of research, including the protection of human subjects and principles of data security, analysis, interpretation, and reporting.

Step 12: Integrating Labor Market Survey Data with Other Labor Market Data

Once primary data are collected through the LMS, it may be relevant to compare it to secondary data sources and other client/evaluator data to arrive at conclusions or recommendations. When comparing the LMS results summarized in Step 10, with those of other regional wage sources for the same metropolitan statistical area, Joe found that the low end of the range generated by his LMS was lower than the entry wage for the same geographical area as noted in the most recent regional source two years ago when data were collected. Differences were also found in median

wages with higher wage estimates being reported two years earlier in the regional labor market source. Looking at inter-source and intra-source data, such as between Joe's LMS wages and those of other secondary data source, helps provide useful information pertinent to Joe's overall labor market analysis.

Although the LMS is a cross-sectional survey and not explanatory research, about half of the respondents gave Joe unsolicited qualitative responses that helped him gain insight into potential similarities or differences in wage level and other labor market differences between his LMS and other secondary data sources reviewed. Such employer responses were:

- "The market is really slow."
- "We went from 12 electricians down to 3. We are just trying to stay in business with some residential work ... the economy hit us hard."
- "This state has one of the slowest recovery rates in the US. I have gone from having 8 guys down to just 2."
- "The past 2 years have been really bad – first time since 1982 I've had trouble keeping the guys I have working."
- "Labor market for electricians is terrible in this state because construction is down so much."
- "Work has slowed down a lot in the past few years."
- "We have a lot of loyal clients so we are in pretty good shape – but it has slowed down and we are doing more service work than industrial."
- "Construction right now is in the dump so electrician work is in the dump, too. Only reason we are alive is phone and data lines that we have been laying."

These comments suggested that the labor market for electricians, as surveyed in Joe's geographical area, has been poor for some time and continued to be so. In bringing all of the information together from his LMS and other secondary data sources, Joe advised Riley to anticipate a lower hourly pay rate in her return to work than what she earned at the time of injury given the present business conditions. However, she would likely physically be able to resume her work given her physical restrictions but should be conscious of how much she carries on her tool belt and the activities she delegates to her apprentice. Further, although the labor market among electrical contractors seems to be very limited due to present economic factors, Riley may want to examine her transferable skills more closely to tap into secondary markets, such as service work or working for manufacturing, government, or utility settings, and perform additional LMSs to examine the labor market in those practice settings

and/or consider short-term retraining into those settings.

Expense of the 12 Step LMS Model

The 12-Step LMS Model (Barros-Bailey, 2011a, in press) infuses checks and balances inherent in survey methods research into LMS as it has been historically used in rehabilitation and disability services. Does the model also add cost? When working with a client/evaluee, the rehabilitation professional's time and expense vis- -vis resulting benefits of the data collected must be weighed. For Steps 1 through 6 in our example, Joe took an hour of professional time; for Steps 7 to 8, he took three hours; and, for Steps 9 through 12, he took under two hours. The richness of the data collected and the contribution to decision-making far outweighed his time involved in the LMS's conceptualization, design, implementation, processing, and completion. The data contributed through the LMS provided significant information about the labor market that Joe and Riley would otherwise have missed potentially resulting in higher time and emotional costs in other functions of the rehabilitation counseling process.

Some hidden occupations may take substantially more time to study than those where the sampling frame is more readily accessible. Other occupations may take substantially less time to study because their existence in the target labor market is very limited. Or, a LMS may contain a variety of jobs falling into this range. Certainly, the time in performing primary data collection is substantially greater than the time involved in researching and reporting on secondary data sources. Weighing the need for LMS data should involve a cost/benefit analysis. Sometimes this analysis, however, may be undetermined until Step 7 when the rehabilitation professional pilots the instrument in a labor market or with a job relatively unstudied and having little information available through secondary data sources.

Conclusions and Future Research

Labor market surveys are a means of ergonomic and ergonometic data collection that could help bridge information within econometric data sources to client/evaluee needs (Barros-Bailey, 2012b). These surveys are an intrinsic part of the scope of practice of rehabilitation professionals (Barros-Bailey, 2011a, in press; Barros-Bailey & Saunders, 2012a, 2012b) and are a tool used historically and in contemporary practice. Yet, LMS is not necessarily needed or appropriate for each client/evaluee because the rehabilitation professional's experience or the depth or breadth of secondary data sources may be sufficient to arrive at the needed conclusions or recommendations (Barros-Bailey, 2012b, in press).

Because of the purpose of the LMS used in this case example, certain decisions were made that resulted in a census being taken rather than a sample; also, the data tended to be more quantitative in nature. Some occupations are less accessible or are emerging and the true target population may be unknown. Thus, exploring different approaches to sampling within the 12-Step LMS Model is an important area for further research (Barros-Bailey, 2012a).

Beyond considering sampling options given the purpose of the LMS, other areas for future research may include examining the effectiveness of the 12-Step process in different practice settings or with different needs for ergonomic and ergonomic labor market information. In addition, research regarding resources used by rehabilitation professionals to develop sampling frames and approaches to gaining access to respondents to obtain good data quality are all areas that may assist the practitioner to develop more economical, valid, and reliable LMSs. Contributions to the literature for this relatively undocumented area of practice would benefit all rehabilitation professionals regardless of practice setting or the LMS's application.

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