

# Methodological application of multiple case study design using modified consensual qualitative research (CQR) analysis to identify best practices and organizational factors in the public rehabilitation program

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Revised/Accepted July 2014

**Abstract.** A multiple case study design, using modified consensual qualitative research (CQR) methodological elements for data analysis, was used to explore emerging and promising practices among four state vocational rehabilitation programs. One hundred fifty-eight counselors, mid-level managers, and leaders participated in semi-structured interviews to help identify both organizational and service delivery practices associated with successful employment outcomes in the public Vocational Rehabilitation (VR) program. Conducting comprehensive, multiple case studies is time and resource intensive and can therefore be difficult to replicate. However, the eclectic methodology utilized for this study resulted in rich results that will be helpful in informing rehabilitation research, practice, and policy.

**Keywords:** Multiple case study design, consensual qualitative research, state vocational rehabilitation agency, evidence-based practices, qualitative research

## 1. Introduction

Researcher-practitioner partnerships will be critical in all aspects of future intervention research, including knowledge translation and implementation of results (Baumbusch et al., 2008; Kerner, 2006). Vocational rehabilitation (VR) counseling has been empirically demonstrated as a valuable and effective specialization among counseling professions (Pruett,

Swett, Chan, Rosenthal, & Lee, 2008). Empirical studies of state agency VR practices reveal that while research-informed practices exist in VR, evidence-based practices (EBP) are not common at the practitioner or system levels, are inconsistent in application and scope, and lack formal fidelity protocol regarding design, implementation, and evaluation (Fleming, Del Valle, Kim, & Leahy, 2013). The National Institute of Disability and Rehabilitation Research (NIDRR) recognizes this concern and emphasizes development of evidence-based practices across all of its programs, including those focused on employment of individuals with disabilities within the

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state-federal VR program (Brannon, 2010). The lack of extant EBP clearly defining specific VR methods that produce quality employment outcomes for clients must be addressed (Leahy & Arokiasamy, 2010). It is therefore critical for state VR agencies to have more precise information about research-based practices available to enhance successful outcomes for VR consumers.

Law (2002) notes that the majority of current rehabilitation interventions are not empirically supported, but are primarily based on counselor experience and practical knowledge. Practitioner knowledge and skill are valuable in identifying needs and EBP using collaborative, participatory research methods. Practical knowledge and experience is also highly valuable in terms of helping researchers better understand the cultural and organizational contexts of practice. Recognizing these important variables can help researchers better understand and distinguish how and when practitioners also use their experiential knowledge when implementing EBP (McWilliam, 2007; Sudsawad, 2007). Practitioners and researchers, working collaboratively, can facilitate the development of evidence-based interventions defined by their methodological rigor and informed by contextual knowledge and practical experience (Kerner, 2006). The Rehabilitation Research and Training Center on Effective Vocational Rehabilitation Service Delivery Practices (RRTC-EBP VR) is being sponsored by NIDRR at the U.S. Department of Education to identify best practices, evaluate the evidence in support of those practices, and work with state VR programs to promote the identification and adoption of EBP.

The RRTC-EBP VR identified four high performing state VR programs through a process of surveying state VR programs, review of annual adjusted rehabilitation rates, and other indicators of innovations in practice (Chan, Wang, Muller, & Fitzgerald, 2011; Leahy, Del Valle, & Sherman, 2012). The researchers were interested in studying these states, in depth, to identify best practices and effective organizational factors present in the public VR program. Identification of emerging and promising practices helps inform the development of EBP and allows researchers to learn how contextual factors may influence interest and ability to acquire, apply, and share practices in the field (Puddy & Wilkins, 2011). The identification, development, implementation, and evaluation of EBP is important for VR programs to improve outcomes and remain a relevant and scientifically grounded field in coming years.

The purpose of this methodological paper is to provide discussion and examination of the application

of the multiple case study method undertaken by the RRTC-EBP VR to identify promising best practices and organizational factors associated with successful employment outcomes for consumers served in the public VR program. Elements of an adapted consensual qualitative research (CQR) approach were utilized during data analysis. This paper will focus on the methodology that guided the qualitative research effort and provide observations about the applicability of a modified CQR analytical process in future rehabilitation counseling research. Specific findings from the four-state multiple case study (Leahy et al., 2013) are presented and discussed in detail in separate articles within this special issue in terms of promising best practices (Del Valle, Leahy, Sherman, Anderson, Tansey, & Schoen, 2014) and organizational environments and cultural factors (Sherman, Leahy, Del Valle, Anderson, Tansey, & Lui, 2014).

## 2. Qualitative research approaches

Qualitative research methods are used less frequently than quantitative methods in rehabilitation counseling research but this methodology can be instrumental in understanding complex interactions between individuals and their environment, and how these phenomena influence outcomes (Anderson, 2013). Research using mixed methods involving elements of both quantitative and qualitative methodology is also recommended for broader use in the social sciences (Johnson & Onwuegbuzie, 2004; Onwuegbuzie & Collins, 2007). However, while qualitative approaches have been critiqued for not employing the rigor of quantitative studies, they provide a unique opportunity to explore and better understand complex, multifaceted phenomena that may not be practical with quantitative approaches (Chwalisz, Shah, & Hand, 2008; Denzin & Lincoln, 2005; Hanley-Maxwell et al., 2007).

Within qualitative investigations, researchers typically identify with an epistemological paradigm, within which various theoretical frameworks exist and further include representative methods. Commonalities exist across all qualitative methodologies regardless of the theoretical framework they represent. Qualitative researchers typically: (a) involve participants in the data collection process; (b) ensure that data are collected in a naturalistic setting with researchers and participants interacting in a face-to-face manner; (c) recognize researchers as the key data collection "instruments"; (d) include multiple sources of data in the analysis; (e) consider the research process to be emergent and

therefore conduct data analysis inductively; (f) are concerned with the meaning participants hold regarding the issue under study; (g) interpret what they see, hear, and understand; and (h) try to develop a complex picture of the issue (Creswell, 2007; Denzin & Lincoln, 2005). Qualitative approaches traditionally used in research include narrative, phenomenological, grounded theory, ethnographic studies, and case studies; although CQR methodology is now also being utilized by rehabilitation researchers (Fleming, Phillips, Kaseroff, & Huck, 2014). There are often commonalities between qualitative methods and the approaches noted here are intended to provide a basic overview rather than underscore distinctiveness from quantitative methods.

### 2.1. Narrative inquiry

Narrative inquiry and analysis documents experiences as expressed in the lived and told stories of individuals. It is the spoken or written text or photography (photo-elicitation) giving an account of an event(s) or action(s), which are chronologically connected. Narrative research is best used to capture the detailed stories of life experiences of a single life or the lives of a small number of individuals (Chwalisz et al., 2008; Kettle, 2010; Polkinghorne, 1988).

### 2.2. Phenomenology

Phenomenology is used to illuminate an event or occurrence of interest or a phenomenon in terms of the essential structures of experience by 'bracketing' taken-for-granted assumptions and usual ways of perceiving. Phenomena are described based on data typically derived from spoken or written accounts of personal experience. It entails gathering in depth information and perceptions via interviews, discussions, and participant observation (Chwalisz, Shah, & Hand, 2008; Giorgi, 1970).

### 2.3. Grounded theory

Grounded theory is useful when a theory does not already exist to explain a process. A grounded theory inquiry is a study of a concept focusing on the main concerns of individual participants, then on emerging group patterns. The purpose of grounded theory is to move beyond description and generate or discover a theory (Chwalisz et al., 2008; Glaser & Strauss, 1967; Corbin & Strauss, 2008).

### 2.4. Ethnography

Ethnography focuses on a cultural group. The ethnographer is a systemic study of shared and learned patterns of values of behaviors, beliefs and language of a cultural group. Ethnography involves extended contact and fieldwork, most often through participant observation, and the goal is to document culture or decipher social meaning of ordinary activities of people in natural settings (Chwalisz et al., 2008; Creswell, 2007; Fetterman, 1989; Ybema, Yanow, Wels, & Kamsteeg, 2010).

### 2.5. Case study

Case studies can be defined as descriptive, exploratory or explanatory analyses of a person, group, event, policy, project, decision, or institutions. Case studies explore a bounded system through in-depth data collection, involving multiple sources of information, and reporting a description of themes (Bastxer & Jack, 2008; Creswell, 2007). A case study is conducted when: (a) the focus is on answering "how" and "why"; (b) behavior of those involved in the study cannot be manipulated; (c) the intention is to address contextual conditions because it is believed to be relevant to the phenomenon under study; or (d) boundaries are not clear between the phenomenon and the context. A case is defined as a phenomenon occurring in a bounded, or specified, context and is, in effect, the unit of analysis (Stake, 1995; Yin, 2009).

*Multiple case study design.* Yin (2009) notes that single and multiple-case designs should be considered as variations within the same methodological framework rather than as distinctly different approaches. Multiple case study design enables replication (by the use of more than one case) to independently confirm emerging constructs and identify complementary aspects of the phenomenon under investigation by analyzing within and across settings (Baxter & Jack, 2008). Although the benefits to using a multiple case design include representativeness and robustness, multiple-case studies also require extensive resources and time. Multiple-case designs allow for replication in data collection across sites, which can be beneficial in understanding the issue under study. Thus, the decision to utilize multiple versus single-case design must be weighed carefully.

### 2.6. Consensual Qualitative Research (CQR)

The CQR methodology is frequently used as a qualitative inquiry method in counseling psychol-

ogy research, prescribes the use of semi-structured interviews, and holds considerable potential for rehabilitation research (Leahy et al., 2013). Hill (2012) note that while CQR methodology was developed in the context of psychotherapeutic research and draws most directly from grounded theory; it has broad applicability across topics and fields.

The essential features of CQR include (a) use of open-ended interview questions and semi-structured data collection techniques, which enhance consistent data collection and provide an in-depth examination of individual differences; (b) participation of several researchers throughout the data collection and analysis processes to promote multiple viewpoints; (c) gaining consensus across researchers about the meaning of the data; (d) using a minimum of one auditor to review the work of the primary researchers and to lessen the effects of groupthink among researchers; and (e) using three distinct analytical phases through which data are organized into domains, core ideas, and cross-analyses (Hill, 2012).

The essential features of CQR as delineated above were utilized for data analysis. However, this multiple case study intentionally adapted specific elements of the traditional CQR method in the following manner. First, while the developers of CQR methodology recently noted the importance of exploring use of CQR with case study research and providing a new term - CQR-case study (CQR-C) (Jackson, Chui, & Hill, 2012), they did not specify use of CQR with multiple case study design. Rather, CQR-C has been described as a method for studying therapeutic effects with single cases. However, having utilized specific elements of CQR within a multiple case study design, the researchers note that incorporating CQR fundamentals enhanced the rigor of analysis and subsequent trustworthiness of the results. Second, both individual and group interviews, or focus groups, were used to collect data across multiple participants. While use of focus groups for data collection within a multiple case study using the CQR process for data analysis is a modification from the traditional CQR method, it is noted as an acceptable CQR data collection strategy in the literature (Sue, Capodilupo, & Holder, 2008; Sue, Bucceri, Lin, Nadal, & Torino, 2007). Third, the current case study of multiple state VR agencies required researchers to address a complex and multi-layered series of research questions by collecting data across four independent sites. It was important to identify specific extant promising practices and organizational factors in a systematic and comprehensive fashion. Although modified consensual

qualitative research (CQR-M) is noted as an adaptation to the traditional CQR process for use with large samples, the data used is typically brief and simple (Spangler, Liu, & Hill, 2012).

While CQR traditionally involves established processes, the research team agreed that adaptations were necessary given the large sample size and complex scope of data involved with this multiple case study design. Adaptations to CQR are not uncommon. However, in any inquiry, it is important to understand and use methods providing the most appropriate fit with the research questions at hand, and note modifications to the methods accordingly (Creswell, 2007; Hoyt & Bhati, 2007).

### **3. Using CQR to analyze the multiple case study of VR agencies**

An adaptation of traditional CQR, CQR-M, and CQR-C methodology was used to analyze the comprehensive, multiple case study data (Hill & Williams, 2012; Hill, Thompson, & Williams, 1997; Jackson, Chui, & Hill, 2012; Spangler, Liu, & Hill, 2012). Within this study, data were collected independently from participants through the state VR programs in Maryland, Mississippi, Texas, and Utah. Consistent with multiple case study design, data at each location were gathered and organized independently, with subsequent cross-analysis and compilation taking place across sites (Stake, 2006).

The core CQR components were adapted into an analytic strategy highlighting assimilation of data gathered through both focus groups and semi-structured individual interviews conducted with participants across four study states. Data analysis using CQR entails three fundamental stages. Initially, domains (i.e., topics used to group or cluster data) are identified and used to segment focus group and interview data. Core ideas (i.e., summaries of the data that capture the essence of what was said in fewer words and with greater clarity) are then identified from the focus group and interview data within domains. Finally, a cross-analysis process is used to identify common themes across participants or groups (i.e., develop categories that describe common themes reflected in the core ideas within domains across cases).

Within the traditional CQR process, documenting frequency across individual participant responses is typically used to attain representativeness. The researchers in this study intentionally modified the CQR

process by forgoing response frequency and instead established representativeness through careful independent analysis, considerable team discussion, and recognition of response value through the consensus process. An auditor familiar with the study but external to the consensus development process provided input at each stage to ensure trustworthiness and integrity of the results. Draft versions of results were also sent to participants in the respective state VR agencies for review, input, and confirmation of accuracy.

### 3.1. Research questions

Research questions were designed to elicit information from the case study participants across the four-state sample regarding services and interventions they believed were evidence-based, innovative, and promising practices that lead to improving employment outcomes for customers served. The research questions were intentionally developed as open-ended in order to provide an opportunity for sharing EBP and best practices and to encourage candid dialogue among the study participants. The case study research questions were:

- (1) What are the specific best practices that appear to be evidence-based and transportable to other state VR agencies?
- (2) What are the best models of effective practice, policy and procedures among state VR agencies that result in the creation of an environment that promotes innovation and the effective delivery of services to assist individuals with disabilities to achieve employment outcomes?

### 3.2. Research design

Researchers opted to use a multiple case study design utilizing a modified consensual qualitative research (CQR) framework for data analysis. Case studies explore a bounded system through comprehensive data collection, involving various sources of information, and reporting a description of themes (Creswell, 2007). A case is defined as a phenomenon occurring in a bounded, or specified, context and is the unit of analysis (Stake, 1995). The process involved key tenets and methods central to qualitative research that includes using semi-structured and open-ended questions to gather data, utilizing words to describe phenomena, studying the case intensively, recognizing the importance of context, using an inductive analytic process, using a team to make decisions by consensus, using

auditors, and verifying results by systematically checking against the raw data (Hill et al., 1997). However, the modification of CQR for case study research is an emerging methodological approach and holds promise for rehabilitation.

This case study was instrumental in nature and used multiple, specified cases to better understand the use of innovative best practice, evidence-informed practice, and EBP within the Maryland, Mississippi, Texas, and Utah vocational rehabilitation programs. Instrumental case studies are used when researchers want to gain insight into an issue, are interested in generalizing beyond the case or cases under study, and/or build theory (Mills, Durepos, & Wiebe, 2010; Stake, 2006). Case studies can be descriptive, exploratory, or explanatory in nature (Yin, 2009). This study was primarily exploratory and sought to gain insight into a specific social construct, namely promising or evidence-based practices. This study was consistent with the National Institute on Disability and Rehabilitation Research (NIDRR) stages-of-research framework and categorized as exploratory. The objective was to inform new lines of research related to practices, policies, and programs that help support federal priorities in VR (NIDRR, 2013).

Although qualitative research has been critiqued for lacking the rigor generally employed in quantitative research, the CQR process offers a more rigorous qualitative approach by systematically examining the representativeness of results as well as engaging multiple researchers who analyze and reach consensus in interpreting results (Hill & Williams, 2012; Hill et al., 1997). While the cross-analysis phase of the CQR process was modified for this study based on the use of focus group data, the integrity and rigor of the CQR process was adhered to throughout the previous methodological steps. Additionally, the modifications were intentional and researchers carefully documented where variation occurred.

### 3.3. Sampling and case selection

A number of assumptions, guidelines and criteria were utilized to select the four state VR agencies for inclusion in this study. First and foremost, rather than attempting to select a random sample of state agencies for generalization purposes, the study attempted to identify states that have demonstrated, through past performance, that they have developed effective models of service delivery that set them apart in performance from other state agencies. In this manner, the study

focused on the best models available within the state VR agency network where subpopulation quality employment outcomes are statistically better than average when compared to national VR agency outcomes with the same subpopulations. In other words, rather than focusing on barriers to the delivery of these services, this study focused and highlighted those agencies that have been relatively successful in this area, and may serve as models to learn from in the delivery of these services in the future.

A number of resources were used to identify the state VR agencies to be included in this multiple case study. These include guidance from the Advisory Council in relation to their knowledge of model programs within the public rehabilitation program, data available through the Phase 1 studies that used RSA 911 data, and survey data from state agencies regarding best or promising practices in public rehabilitation and the nomination of exemplary states in terms of effective practices. Based on these data inputs the following states were selected for inclusion in the multiple case studies: Maryland, Mississippi, Texas, and Utah. Following selection of the states, both NIDRR and RSA reviewed and approved this set of state VR agencies for use as the study participants.

### 3.4. Study participants

Vocational Rehabilitation leaders, mid-level managers, and rehabilitation counselors participated in the in-person interviews and focus groups. State agency leaders recruited participants, with key staff members in leadership positions in each state assuming primary responsibility for participant engagement and coordination efforts. Individual interviews lasting approximately 60 minutes were conducted with the respective agency directors or leaders of each state VR program, the director of the VR for the Blind program, director of Client Services, and other representative unit or bureau directors. Focus groups lasting approximately 90 minutes each were conducted with mid-level managers and involved VR regional and district directors. Focus groups comprised of approximately 10–15 participants each were also conducted with VR counselors in each of the four case study states and also averaged approximately 90 minutes. Appropriate representation of staff across the three selected organizational levels was important in identifying key practices and environmental factors influencing the receptiveness to innovation and adoption of promising or evidence-based practices.

### 3.5. Researchers

The research team was comprised of rehabilitation counseling faculty, staff, and doctoral students from five separate universities (Michigan State University, Southern University, University of Wisconsin-Madison, University of Wisconsin-Stout and the University of Texas at El Paso). Distinct teams were designed and comprised of five to six researchers who gathered data in each of the four states; these teams then used the CQR process to analyze state data. The full inter-university research team involved 11 researchers. The auditor for the team was a university faculty member with a doctorate in human and organizational systems and extensive experience as a qualitative researcher. Additionally, all members of the research team participated in the interviews and focus groups, and all team members including the auditor participated in the qualitative analysis.

Identifying and recording biases are recommended for consensual qualitative researchers. Within this study, researcher biases were gathered and recorded in a collective manner. Although at least one of the case study sites reflected the highest unemployment and poverty rates and comparatively low educational attainment rates nationally, all of the researchers identified as educated, middle-class individuals. Additionally, two of the case study states served African Americans with disabilities at higher rates proportionally when compared with national estimates. The researchers noted there were no African American members on the research team. One of the researchers noted prior professional relationships with administrators at the four agencies through a national membership organization. Another researcher had prior experience as a VR counselor serving a rural area with documented understanding of the difficulty in achieving quality employment outcomes in poor, rural locations. Overall, the research team members discussed each of the biases in order to increase awareness and minimize any effects on data analysis and interpretation of the findings.

### 3.6. Procedures

To begin the qualitative research process, the principal investigator contacted each state agency director to inform them that their state had been selected for inclusion in the four state sample, described the study, and solicited their informed consent to be involved in this research effort. The principal investigator solicited from the selected agency the best time for the case study.

The plan included implementing two case studies in the first six months of 2012 and two more during the last six months of 2012. The research teams completed the data collection group meetings in Texas, Utah and Mississippi in 2012. The Maryland agency data collection meetings were completed in January 2013.

As soon as the agencies agreed to participate, the research team began to work with each selected agency to identify, describe, and document best practices. State agencies were also asked to provide the policies and procedures and other contextual and environmental information that contribute to the effective VR service delivery in relation to outcomes, including information on the costs of implementing such practices, policies and procedures. To implement the study, ongoing contact was established with the primary administrator of each state VR program to identify an acceptable time-frame for conducting semi-structured interviews and focus groups with participants. Individuals representing three distinct organizational levels within each state program were interviewed, including the state director and members of the senior management, supervisors and mid-management staff, and rehabilitation counselors (Leahy, Del Valle, Fleming, & Kim, 2012). The interviews and focus groups were conducted in-person in each state over a two to three day timeframes and guided by the specific research protocol designed for this study.

### 3.7. Instrumentation/data collection

When conducting CQR case study research, it is important to make use of multiple sources of evidence in order to triangulate data and develop converging themes (Jackson et al., 2012; Yin, 2009). The primary sources of data collected and analyzed included information gathered through interviews and focus groups, administrative documents provided by each state's central leadership team, and researcher observations. The structured interview questions that guided the formal interviews and focus groups at various levels of each organization studied are presented below. While the number of questions posed was greater than that recommended by Hill et al. (2012) the researchers agreed that this was necessary given the scope of the research questions at hand.

#### *Organizational Promotion of Best Practices*

1. How would you describe your agency's best practices in achieving employment outcomes with the consumers you serve?
  2. How did you get agency approval and support to launch the best practice intervention?
  3. How does the organization support, encourage, and reward staff for creating and implementing promising practices?
  4. How is creativity recognized in the organization environment and what are the key factors from an organizational perspective that lead to success in innovation?
- Design and Best Practice Interventions*
5. How did you identify and document the need for the development of this intervention or service?
  6. How would you describe the process involved in designing the proposal, review and implementation?
  7. How did you design the practice or intervention and who was involved in that process?
  8. What were the explicit rationale and reasons behind designing and implementing these best practices?
  9. How has the intervention changed over the years and what has been done?
  10. How is the intervention funded?
- Evaluating the impact of best practices*
11. How do you know the interventions you have implemented are effective practices?
  12. How long has the intervention been implemented and what have you learned about the impact on client outcomes and satisfaction?
  13. If you could go back and do it again what would you do differently?
  14. What are the key aspects of the practice that lead to success?
  15. How do you evaluate additional outcomes of the practice beyond employment?
  16. Were there any unanticipated benefits to the implementation of this practice?
  17. Were there any changes to the role and responsibility of staff in relation to this practice?
  18. Given the success of these practices, are you planning on developing additional interventions?
  19. Is the practice generalizable or transferable to other physical locations in your state?
  20. What do you believe are the possibilities of other state VR agencies implementing this best practice in their own states?

*Interviews and focus groups.* While individual interviews were the primary data collection method for this study, a variety of data collection techniques including focus groups and mixed method approaches were considered appropriate when used in conjunction with the adapted CQR framework (Chui, Jackson, Lui, & Hill, 2012; Hill et al., 2005). Semi-structured interview and focus group questions were initially developed following the guidelines set forth by McCracken (1988) and Morgan (1997) and further reviewed and revised to complement the adapted CQR process. Interviews and focus groups were digitally recorded and the audio recordings were transcribed for analytical use by the researchers. The auditor was also provided copies of all transcripts.

Key agency documents highlighting innovative best practice were requested from administrators of the VR programs prior to each site visit. Examples of such documents included, but were not limited to: (a) Rehabilitation Services Administration (RSA) 911 data; (b) state plans including staff qualifications; (c) the RSA approved training plan for each state; (d) district and operational plans; (e) RSA monitoring reports; (f) customer satisfaction reports; (g) descriptions of best practices; (h) staff training on specific interventions; (i) evaluative data on selected best practices (when available); (j) specific managers and staff assigned to the identified best practices; (k) cost data on best practices (when available); (l) overall organizational structure and staffing documents; (m) policies and procedures documents; (n) use of American Recovery and Reinvestment Act of 2009 (ARRA) funds and current status of projects implemented; (o) community partners associated with identified best practices and collaborative agreements (e.g., memorandum of understanding, cash match agreements); (p) state Rehabilitation Council input and analysis on best practices and innovations; (q) internal and departmental publications in which best practices information and data is disseminated; (r) awards or recognition provided by the VR agency to employers, staff, and community partners related to innovation and effective service delivery; and (s) additional environmental information on the agency and state (Leahy et al., 2012). All documents were received and thoroughly reviewed by each member of the research team prior to conducting in-person interviews and focus groups to enhance understanding of the respective VR programs. The auditor was also provided with copies of all administrative documents.

*Observations.* Although interviews are typically the primary source of data in qualitative research, obser-

vations documented during the interviews also play an important and informative role (Merriam, 2009). Observations in this study were noted during the interviews and while interacting with staff. The objective was to collect data firsthand, particularly as it related to the research question focusing on environment and agency culture. Observational data was collected from individual researchers participating on the respective research teams across the four sites.

### 3.8. Pilot case study

In order to prepare for the upcoming case studies with four selected state agencies, a pilot study was conducted with the Department of Human Services-Michigan Rehabilitation Services (MRS), the public VR program in Michigan. The pilot study was conducted to test the planned procedures and to train the researchers prior to the full implementation of the study with the four selected state agencies. The pilot qualitative case study analysis was initiated with a comprehensive analysis of the MRS' policies, procedures, practices and structural elements related to the provision of effective best practices to individuals with disabilities served by MRS leading to successful employment outcomes. Specifically, documents from the MRS Innovation Unit were analyzed in order to capture the essential elements that fostered and encouraged an atmosphere of creativity in the provision of VR services to customers. Semi-structured interviews were then conducted with a small sample of personnel from all three levels of the organization to examine how well the questions worked at each level and what kinds of information these interviews were able to identify. Overall, the pilot study was highly informative in validating the process, questions posed and the overall methodology intended for use in the main study.

## 4. Results, CQR analysis and discussion

The order of state agencies visited by each research team was Texas, Utah, Mississippi and Maryland. The order was primarily based on the availability of key staff at the agency and the need to allow sufficient time for the researchers and the state agency personnel to organize and prepare for the onsite visits and interviews. Across the four state sites, four State Directors, 25 Vocational Rehabilitation leaders, 56 mid-level managers, and 73 VR counselors engaged in the study providing perspectives through structured individual interviews and focus

groups for a total of 158 participants. Researchers at each of the state agencies made primary contact with the State Director and agency leaders and these individuals subsequently assumed primary responsibility for participant engagement and coordination efforts for all data collection. The researchers found the leadership, mid-management personnel, and rehabilitation counselors to be open and candid in their responses to the inquiries regarding best practices. They were also willing to share documents and other materials the researchers requested and were interested in the observations made during data collection regarding best practices and how they could improve within their own states.

Data collected at each state agency were analyzed using a modified CQR methodology with members of the research team following the research protocol. Although discussion and differing viewpoints served as valuable functions of this process, the group reached consensus in identifying domains and core ideas that accurately represented the data. The detailed results of the study are portrayed in an interpretive narrative report consistent with the constructivist paradigm and will be presented and discussed in separate articles within this special issue in terms of promising best practices (Del Valle et al., 2014) and organizational environments and cultural factors (Sherman, et al.). Overall, 14 promising service delivery practices, 15 promising organizational practices, and 12 organizational and cultural factors were identified in the study.

#### 4.1. Modified CQR methodology – data analysis

*Domain identification.* The first step in analyzing data using CQR methodology involved review of participant responses gathered through interviews and observations. Based on the interview questions, each member of the research team divided data into relevant domains, or topic areas, independently. Domains serve as the starting point in grouping or clustering copious amounts of information and may include context and specific strategies or interventions (Hill et al., 1997). Following the independent review and domain identification stage, the group convened to discuss suggested domains, add or delete domains as needed, and reach consensus on the final domains used to accurately portray results. The draft domains were sent to the external auditor for review. Auditor input was considered and discussed as a team with revisions to the domain areas made accordingly.

*Core ideas.* Following domain identification, the researchers independently summarized the content of

each domain into brief abstracts with the intent of capturing the essence of each domain in as few words as possible and with enhanced clarity (Hill et al., 1997). Core ideas including brief abstracts or summaries were developed for all material within each domain for the study. The draft core ideas were sent to the external auditor for review, and based on auditor feedback, appropriate changes were subsequently made. The team then met to discuss the suggested core areas, revise as needed, and arrive at consensus before moving to cross-analysis of the data.

*Cross-analysis.* The final step in the CQR process was a cross-analysis involving the development of categories to describe consistencies across the core ideas within domains (Hill et al., 1997, 2005). Cross-analysis is more complex than the previous steps of domain and core idea identification and allows for a higher level of abstraction. The cross-analysis process required the researchers to creatively and dutifully derive categories by identifying common themes or elements across responses within the sample. The researchers again independently reviewed the core areas identified within each domain and suggested potential categories. The team subsequently met to compare categories and determine which best represented the data (Hill et al., 1997; Ladany, Thompson, & Hill, 2012). Hill et al. (2005) recommend characterizing categories using frequency terms rather than numerical representations, with general results applying to all or all but one of the cases, typical results applying to at least half of the cases, and variant results applying to at least two but fewer than half the cases. However, as noted earlier, because the research team was concerned about the difficulty in delineating responses ascribed to individuals and the potential of unintentionally distorting results, they opted to not use frequency terms to illustrate representativeness with focus group data. Instead, the research team agreed to modify the cross-analysis process consistent with focus group data in previous CQR studies (Sue et al., 2007, 2008; Veach et al., 2001).

*Use of an auditor.* Integrating the assistance of an auditor, who is familiar with the study, but external to the consensus process, is a unique feature of CQR methodology (Ladany et al., 2012). The auditor for this study was provided access to raw data including interview and focus group transcripts and provided objective input to determine whether (a) data were accurately assigned to the domains; (b) key material in the domains was accurately abstracted into core ideas; and (c) the wording of core ideas was concise and reflective of the raw data (Hill et al., 1997). Hill et al. (1997) recommend

that auditors provide rich feedback because it encourages members of the research team to think carefully about abstracting and constructing the data. The auditor in this study actively provided comments to the team who then considered and opted to accept or reject each comment based on a full and thoughtful discussion. The process was appropriately repeated to ensure that the domains identified by the team accurately represented the data.

#### 4.2. *Cross-analysis of multiple case studies and audit*

Given that independent case studies were conducted under the auspices of a broader multiple case-study analysis, additional review and synthesis of the data were necessary. The comprehensive multiple case study research team was led by researchers at Michigan State University and included researchers from the University of Wisconsin-Madison, the University of Wisconsin-Stout, the University of Texas at El Paso, and Southern University. Although each case study was conducted independently, the results across all four studies were reviewed, critiqued, and integrated into a comprehensive cross-analysis by members of the broader research team. Data were examined for themes and then themes were compared across the various agency levels interviewed. Data were then examined across all four of the selected state agencies to look for overall themes of innovations and best practices. The auditor also reviewed the completed cross-analysis to evaluate adequacy and representativeness of the data and to offer feedback to the primary team. These additional steps enhanced trustworthiness of the study.

### 5. Conclusions

The criteria of credibility, transferability, dependability, confirmability, and authenticity are used to evaluate trustworthiness and address challenges to methodological rigor in qualitative research (Hoyt & Bhati, 2007). Williams and Morrow (2009) further refine recommendations for establishing trustworthiness when using the CQR process as the need to (a) establish the integrity of the data; (b) balance tension between subjectivity and reflexivity; and (c) clearly communicate findings and their applicability to research and practice. Providing study participants with an opportunity to review and comment on the results is also a recommended strategy for enhancing trustworthiness (Hill et al., 1997).

In an effort to ensure integrity, data methods and results were clearly described in this study to allow for replication of the study's procedures and include information about the research team members, evidence regarding adequacy of the sample, interview protocols, recruitment strategies, information regarding the interview and transcription process, and other details of importance. Given that qualitative research is inherently subjective, it is important for researchers to carefully explore, manage, and document biases and expectations. Recognizing and intentionally setting aside one's biases and expectations is one strategy used in CQR that can be helpful in reflexively identifying these issues (Hill et al., 2005). Additionally, the use of multiple research team members and an auditor provides a balanced analysis and representativeness of the findings.

In addition to enhancing trustworthiness by conducting a multiple case study cross-analysis and audit, the researchers also sent a copy of the results in draft form to state leaders for participant review. This step was taken to ensure integrity of the data and accuracy in the research team's reporting and representation of the results. Leaders were encouraged to share the draft report with their senior management teams, mid-level managers, and selected counselors who participated in the study. Input provided by the respective state VR programs did not change the substantive nature of the results but did substantiate accuracy and trustworthiness of the findings.

Overall, the researchers believe that the use of an adapted CQR process was instrumental in the process of analyzing the multifaceted data obtained from the three levels of participants within each organization (leadership, mid-management, and counselors) across the four state sample. The modified case study CQR methodology allowed for researchers to work together in a rigorous and structured manner within and across individual state teams in order to identify the final set of observations regarding best practices associated with successful outcomes for consumers served within this multi-state sample. One of the final actions that the entire research team undertook is the examination of the practices in relation to portability to other state agencies. This important aspect will be further examined in the near future when the researchers design and implement a national Delphi Study with a panel of national experts to identify those practices that appear the most important and are portable to other state agencies within the public VR program. In summary, the research team would highly recommend further use of the CQR methodology in qualitative studies in rehabili-

tation research where multiple sites and research teams are needed.

The challenge moving into the future will be sustaining a strong, ongoing partnership between researchers, program administrators, and practitioners to identify, develop, implement, and evaluate the effectiveness, efficacy, and efficiency of EBP within the national VR program. As stated by Leahy et al. (2009), it will be important to emphasize the meaning of research findings for practitioners and consumers in improving services and employment outcomes, and translating and disseminating EBPs in order to inform practice and policy. For EBP to be meaningful and realistic for practitioners and the state-federal VR system, rehabilitation researchers must further utilize participatory models such as CQR and encourage use of mixed methods approaches to ensure practitioner input is integrated into the process of establishing new EBPs within VR.

## Acknowledgments

The contents of this article were developed with support through the Rehabilitation Research and Training Center on Effective Vocational Rehabilitation Service Delivery Practices established at the University of Wisconsin–Madison and the University of Wisconsin–Stout under a grant from the U.S. Department of Education, National Institute on Disability and Rehabilitation Research (NIDRR) grant number PR H133B100034.

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