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SYNTHESIS: WHAT WE'VE LEARNED

In this chapter, we consider the exemplars described in Chapters 5 through 8, reflecting on their commonalities and the unique elements that each narrative presents. The conversations offer insight into the thinking of the researchers as they consider design and implementation decisions related to group concept mapping (GCM). We link our observations about the application of GCM in the examples with principles and characteristics that are central to GCM, as noted in the foundational literature (Kane & Trochim, 2007, Trochim, 1989). They are participation, utilization, and representation; and as an overarching framework, integrated mixed methodology. Through the lens of mixed-methods methodology, we position the GCM approach in the larger context, highlighting the features of mixed methods that are standard in GCM.

There are reasons why researchers choose this method, and understanding their reasoning helps to ensure a strong alignment of the intent, the design, and the outcome of research using concept mapping. In the following sections, we explore each theme from the perspective of our conversation with the guest researchers and as it's represented in the social science literature, illuminating the place of the GCM methodology in social science research and action.

PARTICIPATION

Participation, or valuing the voices of those with knowledge, opinions, and experience, is a theme throughout the conversations, and indeed through the entire volume. Through conscientious participation planning, we access communities of interest and create group wisdom that will lead to understanding and informed action. Kane and Trochim (2007) accentuate the collaborative group processes as fundamental to the approach, and describe the method as a participatory approach for stimulating learning and action among a group of individuals. Even though GCM relies on sophisticated analytical tools, active consultation of individuals at multiple points within the process makes it a practical, collaborative, and knowledge-seeking method. Consistent with ecological and

experientially sensitive methods in social sciences, GCM opens pathways for people to raise and address topics of concern or interest in multiple ways and at various levels, allowing researchers to better understand complex real-world situations. The guest researchers in our conversations acknowledged—indeed, relied on—the critical relationship of participatory engagement to the success of the GCM project. For Ridings, the success of the program for at-risk youth developed using GCM was directly linked to the ownership of those community residents engaged in the process.

GCM projects generally spring from a specified need or interest that requires broad participatory input. Engaging a variety of perspectives leads to information that will address the gap between a specific theory and actual practices (Nyden & Wiewel, 1992), creating a multiply informed worldview through interactive and highly participatory methods. All research occurs within complex social and political environments, so questions of power, position, and history relative to the issue add to the challenges faced by practical applied research designers. (Lykes, Hershberg, & Brabeck, 2011). Our guest researchers understood that GCM engagement depends on many variables, including the contextual and power issues we mentioned. Each faced the challenge of determining whose reality should contribute to and shape the issue. They also confirmed that participation is not always predictable or continuous, and commitment and enthusiasm for the inquiry may wane over time (Seely, Kengeya-Kayondo & Mulder, 1992). Each researcher describes ways they recognized and addressed issues related to sustaining participation.

In GCM practice, we prioritize the concept and action of "Valuing Voice" (Kane, 2014) as mentioned in Chapter 1. Throughout these conversations, the researchers spoke to the need for equitable involvement: considering how individuals are identified, sought, encouraged, and recognized in contributing to the informed worldview of an issue, which is the objective of the project.

Collaborative and participatory approaches place value on equitable involvement of stakeholders in the research process, emphasizing participation and action. It is relatively simple to invite individuals to answer a question, but intentionally including "ordinary people" in the design, implementation, and utilization phases of a research initiative can be challenging, as noted by the researchers in our conversations. Often, subjects in conventional research studies are simply seen as data sources and don't have a voice in the data's interpretation or use. The very groups who are often targets of research—marginalized, disenfranchised, and less powerful constituencies—are those whose first-hand knowledge and experience are most relevant to an issue. This "research on" design can reduce the likelihood that the results will be accepted or used.

Through GCM, researchers can value participation by developing opportunities for group or community members to contribute input, provide responses, and make decisions that can efficiently yield agreement and compromise. The method's research rigor and its fundamental community-centered nature make it attractive for those pursuing practical knowledge in the service of others. GCM can help researchers balance the use of micro-level context ethnographic methods, with a commitment to scientific tools built upon quantitative assumptions and models (Gladwin, Peterson, & Mwale, 2002; Windsor, 2013).

With an emphasis on participation, other researchers have developed innovative adaptations of conventional research methods to use in new contexts in novel ways—a hallmark of participatory approaches (Cornwall & Jewkes, 1995). GCM allows researchers to intentionally and creatively tailor methods to match the stakeholders' capacities,

backgrounds, and interests to maximize their participation in all phases of a project—knowledge development, interpretation, and utilization of results, particularly within communities where language and culture present substantive challenges to facilitating change (Haque & Rosas, 2010). Each of the researchers in our conversations adapted GCM, tailoring the approach based on the unique challenges presented in their context, especially those related to participant engagement. Whether they were community residents (Ridings), entrepreneurs and business people (Cloutier), or case managers and family coaches (Golden), the guest researchers considered in their design the importance of perspective and the need for flexibility in participation. Like other GCM research initiatives, the anecdotes raise many considerations that GCM practitioners need to emphasize in their planning to meet multiple expectations regarding participation; they are the "3 Ps" of GCM. First, facilitators determine who can practically participate: Who has time, knowledge, and willingness to work on the issue in question? Second, facilitators identify who must politically participate: Who is needed to legitimize or value the results that are produced? Finally, facilitators work to identify who should philosophically participate: Whose voices must be heard, and what moral, cultural, or community meaning will they add to the project?

Establishing research priorities requires that a project designer consider the effects of power, position, and history upon the situation for which the research is intended. The community's perception that the research is truly participatory is critical to the design: defining the problem, identifying who is related to it, and assessing the potential action and change. GCM helps to equalize and minimize power differentials in a way that brings groups to consensus and embraces the voice of diverse member interests, reducing the effects of competing voices and enhancing the capacity to observe measurable differences in a community. Users of the method have described several points in the process where individuals were able to fully participate and contribute beyond their role as primary data sources (Herman, Onaga, Pernice-Duca, Oh, & Ferguson, 2005). As Golden reiterates, a key value in using GCM in the service of action research is the surfacing of a collective picture while simultaneously elevating voices and capturing diversity.

Finally, participatory research promotes and values the significance of research where people seek to better their lives. The quality of participatory research itself improves as individuals participate in conducting truly compelling work that moves past the simple technical-oriented questions toward engagement and emancipation (Bradbury & Reason, 2001). As described by both Ridings and Golden, using GCM to design community interventions puts the process in the hands of people. Golden's use of GCM to capture innovations from practitioners in the field allowed the research team to quickly scale from conceptualization to practice across targeted geographic areas. Indeed, GCM can be a unique way to involve participants in translating research to real-world situations and meaningfully contributing to the expansion of practical and usable science on the development, implementation, and utilization of community-based interventions (Kelly, Baker, Brownson, & Schootman, 2007).

Ultimately, researchers engaging people in research that matters to them must address the philosophical concerns of community relations and moral awareness, at the same time considering the technical elements of concrete situations and constituent activities (Park, 2001). GCM supports the development of community-reflective knowledge, collective autonomy, and responsibility at various levels.

REPRESENTATION AND VISUALIZATION

Every definition of GCM emphasizes the visual output as a key feature. The ability to visualize the collective perceptions and values in a unified set of outputs distinguishes GCM from other forms of mixed-methods research. GCM uses the results of the analyses to produce shared conceptualizations; with the visual output, participants see how their ideas are oriented in relation to one another, and how they emerge as conceptual elements. The researchers in our conversations mentioned the utility of the visual output as increasing their ability to communicate with participants using the maps and other graphics. Stoyanov, for example, emphasized the visuals produced in GCM as instrumental for participants to grasp emerging structures in their data to better support their decision making. Indeed, Ridings described how the maps showed people they saw things differently about the problem and its solution. In the GCM context, representation of the data and visualization of the results that the data yield go hand in hand; here we look at how they are produced and used.

GCM emphasizes the world that we as humans construct conceptually. Methodologically, it maps the meanings that we associate with that world. We can think of two kinds of models: the conceptual model that represents or "stands for" a collective mental model of the group (Rosas, 2016); and the graphical models that are, in essence, a collective or summative visual representation of individual mental models about the relationships among a set of ideas. A concept map reflects or suggests a form of semantic network that becomes a reference system for participants who took part in producing the map. Depending on one's worldview, GCM can yield an empirically replicable way to describe the constructs that may exist in the unconstructed world outside our minds. Others may see it as a way to reflect reality in an active, constructive process, collaborating with aggregated knowledge to codevelop the construction. An abstract set of assumptions about connections between things can be made concrete, and the set reflects the combined judgments of the participants. More than simply a picture of ideas, the GCM visuals provide an empirically derived archetype that participants use to share in the coconstruction of reality, through group meaning-making. Ridings affirmed the value of the GCM in making the theoretical set of constructs tangible for use in the development of the program that is distinguished from simply a list of things people wanted.

The geographical terminology we use when describing group concept maps (e.g., distance, boundaries, location, etc.) helps to convey important principles underpinning the representation (Trochim, 1999). Representationally, objects in concept maps (i.e., items, clusters) are linked by structural relationships, suggesting that the identities of each object depend on it being in a relationship with the other structural components. Each item symbol has a one-to-one relationship to an idea or construct, and the arrangement of symbols on the map shows how the ideas are thought to be interrelated. GCM is intended to represent accurately some implicit cognitive reality of a group, and the validity of the map is based on the degree to which it correctly represents a reality. Arriving at conceptual agreement on this reality produces a conceptual and semantic frame, which has inherent value.

We also expect that the products of this representation—the visuals produced in GCM—will enhance communication and critical thinking of the group and perhaps beyond to a wider audience. Visualization based on qualitative or quantitative data results in an image that represents the original or raw data, and supports exploration, examination, and communication of the data (Azzam, Evergreen, Germuth, & Kistler, 2013). Data visualization offers researchers and participants the ability to present and view information in multiple ways and increases the likelihood of detecting patterns and connections that may not be obvious. With this definition in mind, we see how GCM generates value and benefit from the process of visualization.

GCM's visual output helps a group or a research team construct knowledge from social and cultural sources, and integrate it into preexisting schemas. Group members discover patterns, ideas, concepts, and beliefs inherent to the community within which learning and application is expected to occur. The visual output represents properties of the group mental model visually, enabling individuals at a range of levels—cognitively, organizationally, to browse through large amounts of data efficiently, experiencing a sense of meaning-building as they explore the output. This interpretative quality of visualization opens the way for stakeholders of all types to engage in a process of learning and discussion together that can bring meaning and relevance to the judgments participants make, individually and collectively.

We have described visual representation at the *conceptual* (item and cluster) level. Visualizing *value* ratings at the cluster level (cluster rating maps and pattern matches) and the statement level (point rating maps and go-zones) leads stakeholders to understand the distribution of values across the group and can be valuable to next steps. The graphical comparisons of opinions and values leads participants and researchers to build awareness of value commonalities and recognize differences upon which the work of common prioritization and decision making can be built. It allows the individuals in a group to interpret the overall picture of values, recognizing themselves and others in those pictures. All four of the researchers in our conversations described the production and use of the sorting and rating visuals in their efforts to stimulate further thinking and action. Visual representations catalyzed the collaborative action where learning is negotiated and transferred from one individual to another.

Together, representing the group's cognitive thinking and visualizing the collective mental model help individuals and groups understand the real world—the world of relevance in the concept map—more clearly. GCM generates a visual representation that is more than simply perceptual; it is a rule-governed and replicable production of new and valid knowledge. The concept of the emergence of new knowledge is a hallmark in the studies, where the guest researchers valued the ability of the concept map to organize and reflect ideas and subsequently link them with action. They consistently reported on the strength of GCM to make the abstract more concrete.

Like their geographic counterparts, GCM visualizations provide a sense of direction that enables individuals to negotiate through a terrain of semantic relationships and personal experiences. The interactive conceptual models enable the researcher to create multiple levels of understanding, from the broadest thematic level to the detailed concept. Simplifying complex interrelationships by visualizing them enables researchers and participants to simultaneously recognize environmental or contextual complexity, and identify the practical steps to take.

UTILIZATION

In Chapter 3 we described utilization as one of the main steps of GCM, emphasizing the importance of using the results to develop or enhance the collective actions of the group. In all four of the narratives, the researchers echoed the value of utilization as a key consideration for using the GCM methodology. They emphasized the linkage between the purpose for conducting a GCM inquiry and what might be done with the resulting information.

Each of our guest researchers prioritized their efforts on utilization, sharing examples of how the results were reviewed, considered, and applied as part of stakeholder action. Each guest researcher described a concrete use of the knowledge that emerged from the GCM event, using the products (concept maps, pattern matches, go-zones, etc.) to support subsequent planning and evaluation activities. All four described the purposeful use of GCM results for a specific action: Ridings's development of a logic model, Stoyanov's creation of personas, Cloutier's needs assessment and actions plan, and Golden's best practices for recruitment.

The utilization step of the GCM process has not received a great deal of focused attention in the literature, perhaps, in part because each study and its environment are different from others. Defining utilization or use within the GCM process or results environments changes with the parameters and purposes of the project.

GCM's flexibility and transferability across a range of disciplines and for many different purposes (see Chapter 1) produces different utilization definitions. The most basic may suggest that utilization is simply the act of presenting the GCM results to stakeholders. Using results to support planning, organizing, analyzing, even reporting is common in GCM, and examples of the variety of such is abundant throughout the literature. Other projects include expanded descriptions of efforts to utilize the GCM results for next steps in planning and evaluation.

Each of the researchers in our conversations described the practical issue they were seeking to address in applying the GCM technique to inform a solution. Since GCM considers utilization as a standard GCM process step, the drivers of the project would logically define what utilization might be. Whether the project driver is to understand the elements of the theory at hand, to enhance understanding and planning in an organizational setting, or to design a system for research or evaluation based on community-articulated requirements, the potential for use of results beyond the project is high—when the initiative is designed with utilization in mind.

Results utilization is an important part of any research inquiry, and the creativity and motivation of the researcher and community of interest set the stage for the quality of results utilization. West and Rhoton (1992) observed that the focus of research is often impractical, and suggest that nonapplicable focus is one of the identified barriers to the utilization of research results. GCM emphasizes practical knowledge generation regardless of the prompting issue, which helps to encourage use and makes the results of the applied study more likely be accepted by stakeholders. Indeed, Louis and Dentler (1988) stress that congruence with the real world of practice is an essential property of knowledge that contributes to use. Cloutier underscored action, as the focus of his GCM project was to identify what people should do, and Ridings maintained that simply talking about issues and options wasn't going to lead to a concrete action to meet the needs of youth. So, intentional design that articulates how results will be utilized should be in the forefront of

planning the GCM inquiry. The researchers' experiences in our conversations confirmed what we know, and observe in the broader literature, about utilization of results from GCM.

The set of activities that each participant performs yields a summary product that can support utilization. But GCM also places high value on the process of conducting and experiencing the GCM process as a member of a community. Golden saw GCM as a method upon which to build a community of practice, and in that sense, serve as a facilitating device for a group to cooperatively articulate and address a set of issues. Inasmuch as GCM is more than just the output it yields, we would like to introduce the idea of utilization of the *process* as equally valuable to that of utilization of the *results,* a theme that is present in our conversations.

GCM as a process draws upon foundational practices and long traditions of group facilitation. GCM practitioners have noted over the years that there is something central to experience of the process that is essential to its value—to the individual and to the group. The researchers in our conversations understood this, describing in their narratives the critical elements of participant engagement and experience as uses of the process to coalesce and construct beyond the existing structure. Cloutier, for example, recognized that despite interest in collaborating, nothing in the past had linked participants together in a meaningful way. For him GCM served as mechanism for coalescing interest and action in order to help them work together. Indeed, Ridings found community members developed new relationships, and those that existed previously were strengthened as a result of work on the GCM-driven project.

It is clear that new knowledge is created through GCM, and this new knowledge is more than the output generated through the simple steps. Knowledge is not static or inert, but is shaped into a set of understandings by those who send or receive it. What counts as knowledge includes multiple types (practical, intellectual, emotional, etc.), and encompasses explicit and tacit forms. Explicit knowledge is precise, easily identifiable, and formally articulated, whereas tacit knowledge is covert and ambiguous, and resides within individuals. Transaction between explicit and tacit forms of knowledge occurs when each is clearly specified, combined, and incorporated into practice. In a social interactive context like that of a GCM project, sustained and intense interactions between generators and users can produce new learning. As Golden pointed out, new learning generated during implementation though the GCM process was translated into practice in a way to better meet the service needs of local communities. According to Park (1997) different kinds of knowledge are generated in the context of participatory research activities, each meeting specific objectives. Gathering and analyzing information for action, strengthening ties among and between participants as a collective, and sharpening the ability of those engaged in the research process to think and act critically are some key practical outcomes of GCM.

But a user's new knowledge does not imply its use, and other factors may affect use (Landry, Amara, & Lamari, 2001a). For example, knowledge utilization can be thought of as internal learning when users progress sequentially through reception, cognitive, discussion, reference, adoption, and influence stages (Landry, Amara, & Lamari, 2001b). Knowledge utilization can also include the behavioral and cognitive changes in people due to their participation in a process where knowledge is generated and used (Johnson, 1998; Patton, 2008). This "process use" is usually distinguished from results use, and can include individual learnings from involvement or engagement, as well as effects on the context within which the engagement occurs (Patton, 2007). Like the participants in Wiebeck, Dahlgren, and Öberg's (2007) report on the learning that occurs during focus groups, participants in

GCM may engage in problem solving in response to interpretation during group discussion. Sharing what they think and know, participants in GCM may generate new beliefs and subsequent behavior based on these new beliefs. Disagreements expressed verbally also stimulate learning, as participants challenge, defend, and perhaps modify viewpoints.

Appreciation of multiple views, promoting a shared understanding, clarifying the program or issue at hand, valuing the voices of participants or beneficiaries, generating perceived ownership of results, enhancing motivation to understand or seek more information, and self-determination are a just a handful of outcomes emerge from engagement in GCM projects. Given the participatory emphasis of GCM, intentional and prospective consideration of both *process* and *findings* use are important.

INTEGRATED, MIXED-METHOD APPROACH

The expert researchers described the value of GCM's integrated mixed-method foundation to their work. They pointed out the relevance and utility of information produced by the qualitative and quantitative methods, and confirmed that the integration of methods helped them to better understand the phenomenon of interest. Reflecting on their experiences, the mixing of methods can be viewed as both a way of thinking (a paradigm) and way of doing (a technique). This distinction is noteworthy, and fundamental to understanding GCM as a mixed-method approach.

As we consider how GCM aligns with mixed-method thinking and practice, we might first outline what constitutes a mixed-method inquiry. Simply, a mixed method study

1. Involves the collection or analysis of quantitative and qualitative data within a single inquiry.

2. Bases knowledge on pragmatic grounds.

3. Employs strategies of inquiry involving either the simultaneous or sequential collection of data, with some priority assigned.

4. Collects both numeric and text information and integrates the information at one or more stages in the process of research. (Creswell, Plano Clark, Gutmann, & Hanson, 2003)

GCM is a practical process, usually applied in real-world contexts to address issues or topics of direct concern to the participants—a pragmatic approach. Clearly, the featured researchers were examining practical issues, with implications for how participants might respond in their own environments. Consistent with this philosophy, GCM has high regard for the reality of the inner world of human experience in action, and the influence of experience on opinions and values. Social phenomena are complex, so different kinds of methods are needed to understand and account for these complexities (Greene & Caracelli, 1997). Each example from our guest researchers demonstrates the utility of GCM in a complex social environment, where overlapping and competing human experiences may all be relevant. Researchers continue to recognize the advantages of mixing quantitative and qualitative data collection in a single study to strengthen understanding of the concepts being tested or explored.

Our conversations emphasize that there is more to integration or "mixing" than simply combining quantitative and qualitative methods. GCM blends the two methods in complementary and additive ways. It is different from mixed-method applications that may use several tools to collect and analyze data but that do not produce a true integration. In a design that emphasizes integrated mixed methods, integration occurs when both types of methods are used to answer the same question, and it occurs more richly when one dataset builds upon another dataset through merging, combining, or embedding. Integration occurs when quantitative and qualitative components are explicitly related to each other within a single study in a way that is mutually illuminating (Woolley, 2009). Data integration presumes interdependence between the quantitative and qualitative components in reaching a common study goal (Moran-Ellis et al., 2006). GCM integrates data at multiple points in the process. It has even been suggested that the components are connected in such a way that blurs the distinction between the qualitative and quantitative paradigms (Kane & Trochim, 2007).

Our guest researchers suggested that the design, process, and results were stronger because of the mixed-methods nature of GCM. Stoyanov pointed out that the integrated mixed-method approach of GCM taps into the strengths of qualitative and quantitative methods while mitigating their respective weaknesses. Indeed, Cloutier described the sequenced steps of qualitative and quantitative data collection established a sense of methodological rigor on the part of the participants that ultimately yielded value, credibility, and legitimacy to the process. Triangulating, converging, or corroborating findings, elaborating on or enriching results, using one method to inform another, discovering paradox or contradiction, and extending the breadth of the inquiry are practical reasons for combining methods (Greene, Caracelli, & Graham, 1989; Rossman & Wilson, 1985). Philosophically, others have emphasized the relevance of mixed-methods approaches to convey the needs of individuals or groups of individuals who are marginalized or underrepresented (Hanson, J. W. Creswell, Clark, Petska, & J. D. Creswell, 2005; Mertens, 2003; Punch, 1998).

Our guest researchers found that the steps for conducting GCM align with sequential procedures for integrating data in mixed-methods studies where researchers hope to complement the findings of one method with another method. Integration has been key to unfolding the complex relationships in the topic of study (Bazeley, 2009). A focus on integration encourages serendipity, stimulates theoretical imagination, and initiates new ideas (Brewer & Hunter, 2006; Greene, 2007). In essence, sequential integration of qualitative and quantitative data is one of the features that positions GCM as a unique methodology for capturing the complexity of social phenomena (Rosas 2016). For Stoyanov, the empirical basis of GCM, combined with the interpretive and utilization processes, convinced him there was no better methodology for developing the persona models driving his research.

Ever increasing software capacity and alternative technologies have contributed substantially to the analytical techniques that support integration of qualitative and quantitative methods (see Appendix C). GCM has certainly contributed to and benefited from the technological advancements seen with the advent of several web-based mechanisms to capture, organize, and analyze GCM data. Stoyanov's use of contemporary social media platforms, to solicit input on and facilitate model development in his study, epitomizes the future directions for integrating GCM process with technologies that access the power of networks.

The number and range of applied studies using GCM suggests a strong alignment with mixed-methods thinking and practice. But a limited number of GCM studies have explicitly discussed GCM relative to existing design typologies. Two examples illustrate different positions that are useful as background to GCM's position in mixed-methods methodology research.

In Windsor's (2013) study, GCM was described consistent with the *fully mixed sequential equal status methods design* described by Leech and Onwuegbuzie (2009). Within this design, sequentially phased qualitative and quantitative research are mixed within phases, or across the stages of the research process, with both elements having equal weight. Another perspective (Hanson et al., 2005) describes two other concept mapping studies conducted by Aarons, Wells, Zagursky, Fettes, & Palinkas (2009) and Bachman et al. (2009) as a *sequential exploratory design,* where data collection is done sequentially, quantitative data is prioritized, and data analysis is connected. Here, qualitative and quantitative data were transformed to quantitate the qualitative data elicited from focus groups through multivariate analysis, resulting in a sequential quantification of qualitative data.

Although our guest researchers did not use standard technical language for mixed-methods studies to describe their GCM applications, they all clearly worked with logic, timing, priority, and integration of the multiple methodological processes. In each anecdote, our guest researchers recognized the utility of a mixed qualitative and quantitative approach in producing defensible and usable research findings that recognize local sociopolitical realities, resources, and needs.

CONCLUSION

GCM has become an important methodological tool for researchers as they seek to understand social and behavioral phenomena across a range of disciplinary perspectives. The conversations presented in this book illuminate the applied strengths of the methodology and align with what the social science research community has come to accept. GCM's inclusion as a chapter in the *Handbook of Applied Social Research Methods* (Bickman & Rog, 2009) acknowledged GCM as a legitimate method for social sciences research. We have drawn upon the experiences of the four researchers to highlight the key characteristics of the method, framing these characteristics to contemporary social science practice to expand our understanding of the value of the method for researchers and participants.

Making the case for GCM requires us as methodologists to examine carefully how the approach fits within the broader context of traditional social science research. GCM is both flexible and structured, and it also represents applied research foundations that shape researchers' and participants' assumptions and expectations of the method. Having a sound understanding of how GCM aligns with these assumptions helps to guide decision making regarding design and implementation of the methodology. As the researchers in our conversations have shown, GCM practitioners should carefully consider the challenges associated with their design choice and plan strategies for addressing these challenges, from what drives the project to how it will be meaningfully utilized. For each set of decisions associated with design, the practitioner should make specific choices for the application of GCM, taking into account the bases and assumptions that frame the foundational tenets of the methodology.