METHODOLOGY FOR SHARING PERSONAL CONSTRUCT SYSTEMS

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A methodology is outlined that reflects the intention of Kelly's Commonality corollary of eliciting and recognizing individual differences. People may use the same terms or descriptions to label different constructs, use different terms to label the same construct, use the same term to label the same construct, or use different terms and have different constructs. RepGrid *provides an integrated set of tools for eliciting and analyzing repertory grids.* Socio *is one of the tools in* RepGrid *that compares the construct systems of several people in the same domain. It can be used to focus discussion between people on the differences between them that require resolution, enabling them to be classified in terms of differing terminologies (what they have been labeled), levels of abstraction, disagreements, and so on.* Socio *promotes the full exploration of the conceptual framework of a domain by encouraging people to operate in a brainstorming mode as a group, using differing viewpoints to develop a rich framework. It avoids social pressures that force an invalid consensus by providing objective analysis of separately elicited construct systems.*

The structure of a group can be investigated by examining how individuals in the group share meaning in some domain. An initial repertory grid study was conducted by Shaw and Woodward (1988) to determine how experts in spatial mapping techniques shared their views of this domain with each other and how consistent these views were over an interval of 2–3 months. One of the major findings was that the experts' interpretations of the terminology used in this domain differed as much as or more than their differences of opinion on the topic. This led to the speculation that one of the main areas open to investigation was how they, and other experts, arrive at the meanings of the terms they use to label their constructs.

In order to investigate this, it was necessary to distinguish clearly

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the difference between the constructs and the terminologies used to label the constructs. As shown in Figure 1, the possible overlap of constructs and terminologies leads to four relationships that can occur between the relevant parts of the construct systems:

- *Consensus*, or agreement, occurs when there is agreement in both the constructs and terminology used.
- *Correspondence*, or term disagreement, occurs when different terms or labels are used for the same construct.
- *Conflict*, or constructive disagreement, occurs when the same term is used to describe different constructs.
- *Contrast*, or total disagreement, occurs when different terms are used to label different constructs.

The recognition of consensual constructs is important because it establishes a basis for communication using shared constructs and terminologies. The recognition of corresponding constructs is important because it establishes a basis for mutual understanding of differing terms through the availability of common constructs. For two or more individuals to communicate effectively, shared meanings through the use of identical terms meaning the same thing or through the awareness of differing terms meaning the same thing are important. For example, in discussion of health care, the term *health* may be shared by the discussants to refer to the physical and emotional aspects of health. Also, the terms *health* and *well-being* may be

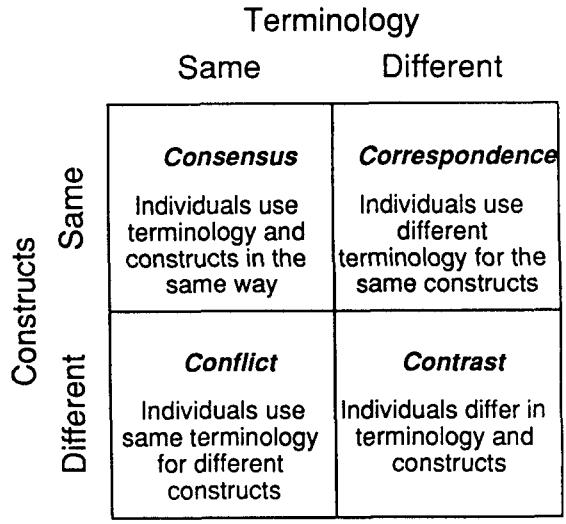

FIGURE 1 Consensus, correspondence, conflict, and contrast among individuals.

used interchangeably by discussants within a defined domain. This interchangeable use indicates that the two differing terms mean the same thing in this case.

The recognition of conflicting concepts is important because it establishes a basis for avoiding confusion over the labeling of differing constructs with same term. In the discussion of *health*, it may also be that some discussants are referring to the emotional and psychological aspects when they use the term, whereas other discussants may be referring to the physiological and biochemical aspects when they use the term.

McKnight (1977) carried out a study of magistrates' sentencing behavior for minor offenses. Elements were court sentences, such as a small fine or 3 months' imprisonment, and constructs were elicited about how these sentences were used for particular crimes. One case was found in which the elements were treated identically by the two magistrates when the first used the words *help–not help*, and the other used the words *short sharp shock–not short sharp shock*. Although these two constructs treated the elements identically, the magistrate who had used *help–not help* also had a construct *short sharp shock–not short sharp shock*, and the magistrate who has used *short sharp shock–not short sharp shock* also had a construct *help–not help*, neither of which matched constructs in the other grid. Hence it would seem that people use radically different words to convey the same idea, and may use the same words to intend different meanings. That is, in the above example there was correspondence in the use of the first mentioned constructs, but conflict in the use of the others.

The recognition of contrasting constructs is important because it establishes that there are aspects of the differing perspectives about which communication and understanding may be very difficult, even though this should not lead to confusion. Such contrasts are more common than is generally realized. Referring to the *health* example, discussants may use the term to refer to the physical and biochemical aspects and use *well-being* to refer to the emotional and psychological aspects. Understanding and defining these differences also promote communication. It may still be possible to discuss the same domain using consensual and corresponding constructs that are not fundamental to the problem-solving activities.

DERIVING PERSONAL CONSTRUCT SYSTEMS

Personal construct psychology (Kelly, 1955) is a psychology of the individual, and many of its applications emphasize the idiosyncratic nature of construct systems (Mancuso & Shaw, 1988). Kelly (1955)

defined the Individuality corollary as follows: "Persons differ from each other in their constructions of events" (p. 55). This corollary expresses Kelly's stress on the personal nature of construing, but he emphasized also that "persons can find common ground through construing the experiences of their neighbors along with their own" (p. 56), although "individuals can be found living out their existence next door to each other but in altogether different subjective worlds" (p. 56).

Personal construct psychology is also a psychology of the individual interacting with the world and embedded in society (Shaw, 1985). It encompasses shared concepts and construct systems and their generation through experience. Another person's constructions of events, as well as the events themselves, provide input relative to those events, and so become a part of the experience of those events. A personal construct theorist must consider that "to the extent that one person embraces a construction of experience which is similar to that employed by another, his psychological processes are similar to those of the other person" (Commonality corollary, Kelly, 1955, p. 90). This corollary complements the Individuality corollary and allows for the "fact that certain groups of people behave similarly in certain respects" (Kelly, p. 93). The Sociality corollary states that "to the extent that one person construes the construction processes of another, he may play a role in a social process involving the other person" (Kelly, p. 95). Kelly here acknowledges that the construal processes of one person can become elements for construal by another and hence can model the process by which we anticipate the actions of others.

Repertory grid methodologies based on personal construct psychology allow a significant part of individuals' construct systems to be elicited through interactive interviewing techniques, such as those of *RepGrid*, which was used in this study (Gaines & Shaw, 1990; Shaw, 1988). (Many other computerized systems are in existence. For a recent review, see Sewell, Adams-Webber, Mitterer, & Cromwell, 1992.) The resultant structure is usually one in which the terms for elements and constructs in a domain have been specified by the person concerned, together with the values of those elements along the dimensions of the constructs. The elements are usually concrete items in the domain whose nature, definition, and names can be agreed on by the people involved. The constructs reflect individual conceptual frameworks and may be used, and labeled, idiosyncratically.

Figure 2 shows the main tools in *RepGrid* relevant to the present issues:

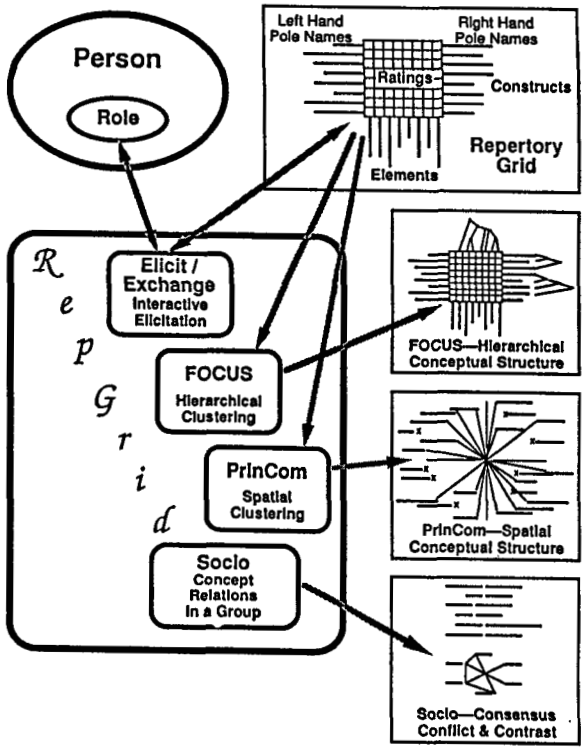

FIGURE 2 *RepGrid* system.

- *Elicit* accepts specifications of elements within a domain and provides an interactive graphical elicitation environment within which people can distinguish elements to derive their constructs. The resultant construct system is continuously analyzed to provide feedback prompting a person to enter further elements and constructs.
- *Exchange* allows the terms in the construct system of one person to be used by another to determine whether the two people have consensus or conflict in their use of terminology and constructs.
- *FOCUS* is a cluster-analytic method for the analysis and display of the construct systems elicited, showing them as hierarchical structures.
- *PrinCom* is a cluster-analytic method for the analysis and display of the construct systems elicited, showing the systems as spatial maps.

- *Socio* compares elicited and exchanged grids in a variety of ways to determine consensus, correspondence, conflict, and contrast. Its methodology is described in detail in the next section.

Figures 3 and 4 give examples of the interactive graphical elicitation of constructs using *RepGrid* in a study of the characteristics of a healthy relationship perceived by the members a small group of therapists specializing in marital counseling. Figure 3 shows some of the characteristics used as elements through a rating screen from *Elicit*, in which a therapist is rating the element *mutual sexual satisfaction* on the construct *individual responsibility–couple responsibility*. This is done by clicking on any element name with the mouse and dragging the element to the construct bar, as is done in any Macintosh interface. The elements to the right of the middle bar have already been rated; those on the left remain to be rated.

Figure 4 shows some of the characteristics derived as constructs through a match screen, also from *Elicit*, in which a therapist is being asked to distinguish *mutual respect* from *mutual trust*. It may be noted that this therapist sees some similarities between the two terms. Both are construed as a couple's responsibility, as allowing intimacy, as an

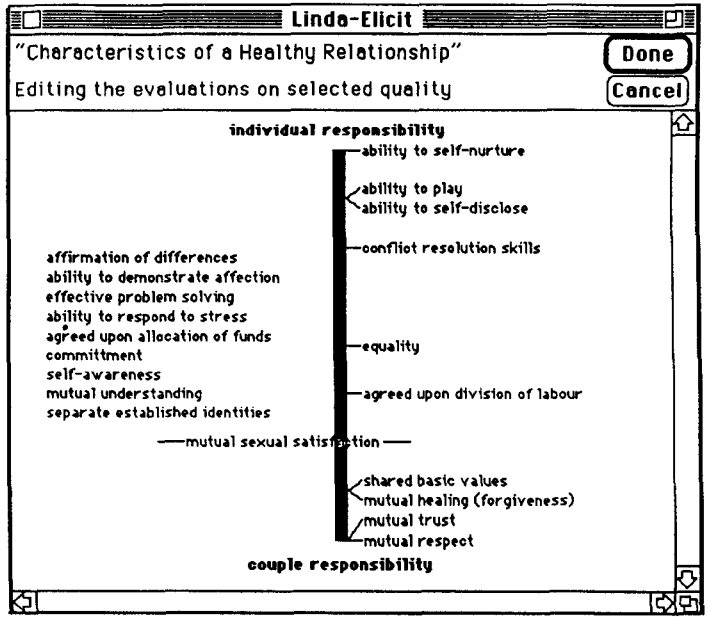

FIGURE 3 *RepGrid* construct elicitation screen showing elements being rated.

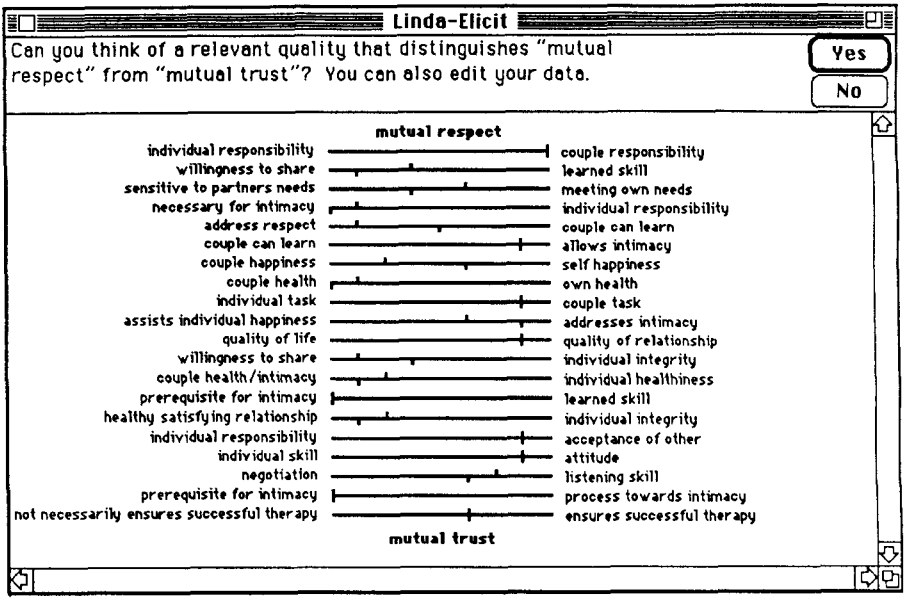

FIGURE 4 *RepGrid* element match screen showing ratings on constructs.

action or task of the couple, and as resulting in a quality relationship and acceptance of each other. Both terms are also construed as a prerequisite for intimacy and as one element in therapeutic prognosis. On the other hand, the two terms are distinguished in that *mutual respect* is construed as contributing more to couple happiness and *mutual trust* as contributing more to self-happiness. Variations on this self–couple distinction can be seen in other results in Figure 4. Figure 5 shows a completed grid representing the distinctions on the construct bar as a rating scale from 1 (on the left pole) to 9 (on the right).

DERIVING RELATIONSHIPS BETWEEN PERSONAL CONSTRUCT SYSTEMS

Exchange methodologies were developed for the measurement of understanding and agreement between two individuals, between two roles, or on two occasions (Shaw, 1980). Two people each elicit a grid in an area of common knowledge or experience. Each may choose elements independently of the other and elicit and rate his or her constructs quite separately. Each can then exchange his or her grid, that is, use the other's elements and constructs but fill in his or

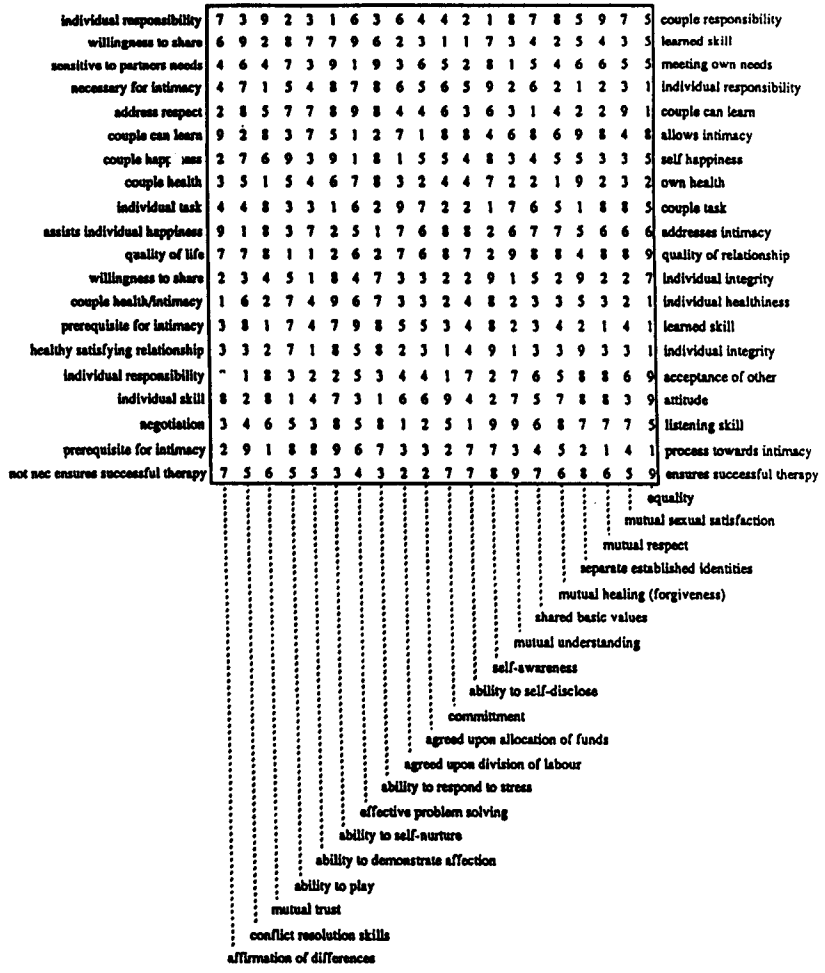

FIGURE 5 Construct system in Linda's grid.

her own rating values. For example, in terms of Figure 3, the exchanging person would see the terms *individual responsibility–couple responsibility,* but all of the elements would be listed on the left and have to be dragged to the scale with no knowledge of where the other person had previously placed them.

The *Socio* analysis in *RepGrid* allows members of a group to explore their agreement and understanding with other members and to make overt the conceptual network involved (Shaw, 1980, 1981, 1985). It is an extension of techniques such as SOCIOGRIDS (Shaw, 1980) for deriving socionets and mode constructs from groups of

individuals construing the same class of elements. The objective of *Socio* is to take different construct systems in the same domain and compare them for their structure, showing the similarities and differences.

If the construct systems have the same elements and constructs but possibly differing values, *Socio* analyzes the matches between the elements and the constructs in the two grids according to the values and shows the elements and constructs that are similar and those that are different. A typical application is to determine whether people agree on the definitions of constructs by asking them separately to fill in the values for a grid exchanged between them. If the construct systems have different constructs but the same elements, *Socio* analyzes the matches between the constructs in the two grids and for each construct in one grid shows the closest matching construct in the other. A typical application is to determine whether people are using different labels for the same constructs by asking them separately to define constructs and fill in the values for an agreed set of elements. If neither elements nor constructs are common, no comparison is possible.

Socio also provides two other forms of analysis:

- *Mode elements and constructs* *Socio* attempts to derive modal elements or constructs that reflect a consensus in the group. It does this by extracting highly matched elements or constructs across the majority of construct systems. A typical application is to reach consensus on critical concepts that are associated with a rich vocabulary at differing levels of abstraction.
- *Socionets* *Socio* derives a sequence of socionets that show the degree to which each person is able to make the same distinctions as another person, even if the two use different terminology. A typical application is to investigate the relationships between the people in the group.

CONSENSUS, CORRESPONDENCE, CONFLICT, AND CONTRAST

Using the concepts presented in the preceding section, it is possible to develop a complete methodology for eliciting and analyzing consensus, correspondence, conflict, and contrast in a group of people and to implement this as an automatic process using the tools in *RepGrid*. In our example, we used three marital therapists: Alan, Cynthia, and Linda. Each had been practicing for more than 15 years in the same field but had different backgrounds, and all worked in

the same organization. Each was introduced to *RepGrid* on the Macintosh and instructed how to enter information and how to use the various commands. The methodology has three phases.

Phase 1: Domain Discussion and Instantiation

In Phase 1, a group of people comes to an agreement over a set of elements that instantiate the relevant domain. This is the initial phase of any repertory grid methodology, whether used with individuals or with groups. However, with individuals, the elicitation techniques may be used to elicit more elements as the exploration of the domain proceeds. With groups, it is important that a set of elements be established at the start of the comparative study and that the people mutually agree on the definitions of these elements.

A convenient way to generate this set of elements is to have each person individually use *Elicit* to enter his or her construct system and then extract the elicited elements from all the grids for discussion and consolidation by the group. This has the advantage that the people gain some experience in the use of the *RepGrid* tools and can take advantage of the full elicitation facilities. Our three therapists agreed on the domain "Characteristics of a Healthy Relationship" and separately generated a list of elements and constructs using *Elicit*. The elements were then combined, and discussion lead to the selection of a common set of elements (see Figure 5).

Phase 2: Conceptualization and Feedback

In Phase 2, each person individually elicits constructs and rating values for the agreed elements. Our three therapists completed this stage. The resultant construct systems had the same elements but different constructs and were then analyzed by *Socio*. For each construct in one grid, its best matching construct in the other grid was found, if there was one. The result was a mapping from the constructs in one person's grid to those in another's. Note that this relationship need not be symmetrical. Construct A in Cynthia's grid may be best matched by Construct B in Linda's grid, but Construct B in Linda's grid may be best matched by Construct C in Cynthia's grid.

In evaluating this mapping, we are not particularly interested in the terminology used but rather in whether one person has a construct that can be used to make the same distinctions between the elements as the other person does, regardless of whether these distinctions are called the same things. If such a correspondence occurs, the

people have a basis for mutual understanding of the underlying ideas. For example, when Linda uses the term *couple happiness*, it may mean something very similar to Cynthia's use of the term *couple task*.

If a construct in one system has no matching construct in the other, it stands in contrast to all of the other person's constructs, and it may be very difficult for the other person to understand the use of this term. Thus, the second phase provides the basis for analysis of correspondence and contrast, as already discussed.

Phase 3: Exchange and Compare

In Phase 3, each person individually exchanges elicited construct systems with every other person and fills in the values for the agreed elements on the constructs used by the other people. Each of our therapists was given the elements and constructs of the other two and asked to rate the elements. The resultant construct systems had the same elements and constructs and were again analyzed by *Socio*. This analysis took each construct in one grid and determined whether it matched the corresponding construct in the other grid.

The result is a map showing consensus when constructs with the same labels are used in the same way and conflict when they are not. Thus, Phase 3 provides the basis for analysis of consensus and conflict, as already discussed.

Thus, for two people, four grids obtained by one elicitation and one exchange each are sufficient to classify the relationships between constructs in terms of consensus, correspondence, conflict, and contrast. The methodology scales up linearly for each person, so that n people will be involved in n elicitations, one base elicitation and $n - 1$ exchanges. In our example, each therapist completed one elicitation and two exchanges. These three phases result in all the individual conceptual frameworks having become overt and interrelated.

EXAMPLES OF THE METHODOLOGY IN ACTION

This section illustrates the methodology in action. Figure 6 shows a difference grid where rating values (in this case 1–9) for Cynthia's ratings of Linda's elements on her constructs are subtracted from Linda's similar rating values. Linda's original grid is shown in Figure 5. The printout in Figure 6 shows the constructs on which they agree the most at the top, shown by either no difference or a difference mostly of only 1 or 2, and those with most disagreement toward the

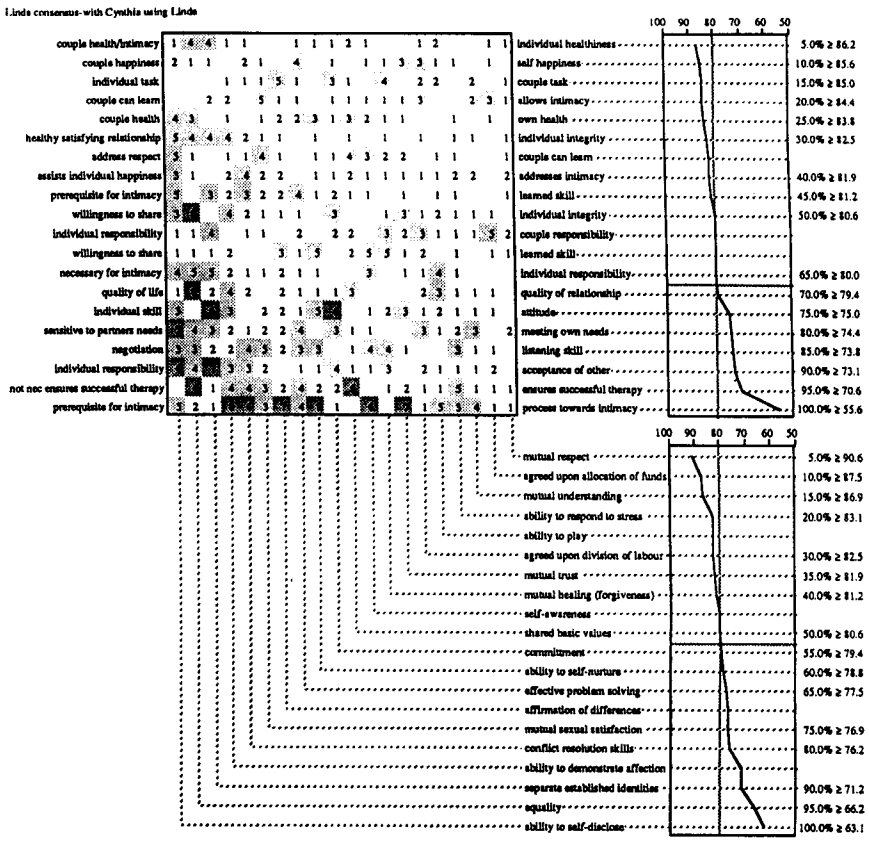

FIGURE 6 The difference grid for Linda and Cynthia using Linda.

bottom, shown by the maximum difference of 8 and large differences of 6 and 7. In the list of constructs, it can be seen that there is consensus on *couple health/intimacy–individual healthiness*, which means that Linda and Cynthia mean very much the same thing when they use these terms. The strength of the analysis shows up in constructs such as *individual task–couple task* and *willingness to share–individual integrity*. These constructs are not so intuitive and yet they are used similarly by both Linda and Cynthia. There is conflict on *prerequisite for intimacy–process towards intimacy*, indicating that here meaning is not shared. Discussion between Linda and Cynthia can focus on their differing classification of characteristics in terms of *prerequisite for intimacy–process towards intimacy*. As can be seen from the graph to the right of the constructs, there is clear consensus on the top 13 constructs, clear conflict on the lowest 1, and uncertainty about the

remaining 6. Hence from this difference grid, the consensus and conflicts can easily be identified and discussed by the people concerned.

In the list of elements at the bottom, it can be seen that there is close agreement on *mutual respect* but high disagreement on *ability to self-disclose*. This output can be used to focus a discussion between the counselors on why they differ in their views of *ability of self-disclose* and the classification of techniques in terms of *prerequisite for intimacy–process towards intimacy*. It is quite possible that the two therapists agree on what it means for a couple to agree fully on how joint funds are allocated. This is likely to be seen as a fairly clear-cut and well-defined activity. However, the two therapists disagree on the ability to self-disclose, which suggests that self-disclosure is a much more complex activity than agreement on funds allocation. The complexity of the self-disclosure concept is witnessed by the volumes of published material on the topic of self-disclosure in the psychological literature.

Figure 7 shows a construct comparison from the study in which Cynthia has specified constructs and filled in the values for the same

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1:            85.0    G1A1:   individual responsibility - couple responsibility
                     G2A11:characteristic of individual - characteristics you share
2:  10.0% ≥ 85.0     G1A9:          individual task - couple task
                     G2A12:individual characteristic - characteristics shared
3:  15.0% ≥ 84.4    G1A19:prerequisite for intimacy - process towards intimacy
                      G2A8:          external result - internal quality
4:            83.1   G1A11: quality of life - quality of relationship
                      G2A8:internal quality - external result
5:            83.1   G1A14:prerequisite for intimacy - learned skill
                     G2A10:  ongoing characteristic  - maintenance characteristics
6:  30.0% ≥ 83.1    G1A15:healthy satisfying relationship - individual integrity
                     G2A12:         characteristics shared - individual characteristic
7:            80.6   G1A13:couple health/intimacy - individual healthiness
                     G2A12:characteristics shared - individual characteristic
8:  40.0% ≥ 80.6    G1A17:individual skill - attitude
                      G2A8:internal quality - external result
9:            79.4    G1A4:necessary for intimacy - individual responsibility
                      G2A8:       external result - internal quality
10:           79.4    G1A8:             couple health - own health
                      G2A9:goal related characteristics - skill related characteristics
11: 55.0% ≥ 79.4    G1A16:individual responsibility - acceptance of other
                      G2A8:         internal quality - external result
12:           78.8    G1A6:         couple can learn - allows intimacy
                     G2A10:maintenance characteristics - ongoing characteristic
13: 65.0% ≥ 78.8    G1A20:not nec ensures successful therapy - ensures successful therapy
                     G2A10:       maintenance characteristics - ongoing characteristic
14: 70.0% ≥ 78.1    G1A12:     willingness to share - individual integrity
                     G2A11:characteristics you share - characteristic of individual
15:           77.5    G1A2:willingness to share - learned skill
                      G2A2:   relationship goal - individual ability
16:           77.5    G1A7: couple happiness - self happiness
                      G2A2:relationship goal - individual ability
17: 85.0% ≥ 77.5    G1A10:assists individual happiness - addresses intimacy
                      G2A2:          individual ability - relationship goal
18: 90.0% ≥ 76.9     G1A5:        address respect - couple can learn
                     G2A10:ongoing characteristic  - maintenance characteristics
19: 95.0% ≥ 75.6     G1A3:sensitive to partners needs - meeting own needs
                      G2A2:          relationship goal - individual ability
20: 100.0% ≥ 68.8   G1A18:negotiation - listening skill
                      G2A3:      value - goal
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FIGURE 7 Construct comparison of Cynthia with Linda.

set of agreed elements as Linda. The printout shows the matches with the best match presented first. The cumulative percentage is given of those with matches greater than the value shown, and the construct from Linda that best matches each from Cynthia is shown beneath it. It can be seen that

- The first or highest match has a level of 85 out of a possible 100 had they been identical. That is, when Linda uses the term *individual responsibility–couple responsibility*, Cynthia is using the term *characteristic of individual–characteristics you share*. This is an example of correspondence and shows a difference in terminology that can be interpreted as their levels of abstraction being different in their construing of this topic.
- The first and second matches together account for 10% of all constructs, and they are matched over the level of 85. For the second attribute, when Linda uses the term *individual responsibility–couple responsibility*. Cynthia is using the term *individual characteristic—characteristics shared*. This shows a difference in terminology that can be interpreted as their attributions of responsibility being different. This also illustrates the two experts having attributes in correspondence.
- The third match accounts for 15% of all constructs and is over the level of 84.4. This shows a correspondence between *prerequisite for intimacy—process towards intimacy* and *external result—internal quality*, which is a difference in terminology that can be interpreted as these two therapists' levels of abstraction being different.
- The first six matches together account for 30% of all constructs, and they are matched over the level of 83.1. The fifth match, between *prerequisite for intimacy–learned skill* from Linda and *ongoing characteristic–maintenance characteristic* from Cynthia, also shows a correspondence and can be interpreted as a difference in terminology corresponding to a correlation.
- The lowest match, at the level of 68.8, shows a conflict between *negotiation–listening skill* and *value–goal*, indicating that the two therapists are using different constructs in different terminology.

Figure 8 shows each of the constructs from Figures 6 and 7 placed the appropriate quadrant of Figure 1.

Figure 9 shows a mode constructs analysis of data from all three therapists that extends the clusters noted earlier. These mode constructs are essentially inter-construct-system clusters of correspond-

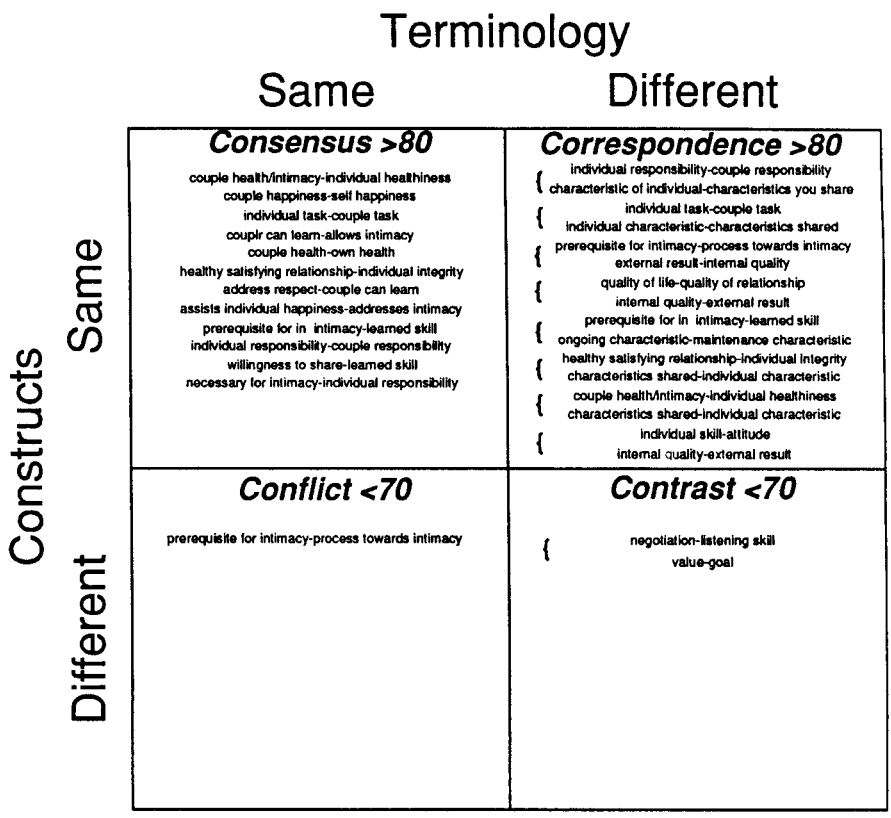

FIGURE 8 Consensus, correspondence, conflict, and contrast from Figures 8 and 10.

ing constructs from the three people. For example, the content of Mode Construct 1 indicates a shared understanding of the difference between the characteristics of a healthy relationship considered to be couple issues and those considered to be individual issues. In marital therapy, the issues surrounding individual rights (individual health) and individual contributions to a relationship are constantly addressed. The mode reflects the importance of the constant tension between individual integrity and relationship demands. The second mode reflects the characteristics of individual and couple responsibilities, and the third mode further extends this same couple–individual issue into areas of task characteristics. Mode Construct 4 adds the outcome dimension of intimacy quality to the issues raised in the first three clusters.

These four mode constructs can be interpreted as indicating lines of reasoning most used by these therapists. This output can be used

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Mode Constructs at 84.0

Mode Construct 1: 5 constructs in 2 datasets at 84.0
  G1A8:                    couple health - own health
 G1A11:          quality of relationship - quality of life
 G1A13:           couple health/intimacy - individual healthiness
 G1A15: healthy satisfying relationship - individual integrity
  G3A1:           openness to each other - does not pertain to the relationship

Mode Construct 2: 2 constructs in 2 datasets at 84.0
  G1A1:     individual responsibility - couple responsibility
 G2A11: characteristic of individual - characteristics you share

Mode Construct 3: 2 constructs in 2 datasets at 84.0
  G1A9:             individual task - couple task
 G2A12: individual characteristic - characteristics shared

Mode Construct 4: 2 constructs in 2 datasets at 84.0
 G1A19: prerequisite for intimacy - process towards intimacy
  G2A8:             external result - internal quality
```

FIGURE 9 Mode constructs from three people.

as a basis for discussion among the therapists on whether these conceptual clusters should be split because they confound different concepts expressed in apparently corresponding constructs or retained as being the same concept expressed in different terminologies. Once this form of analysis has been discussed by the group, it is readily edited and extended.

Figure 10 shows a socionets analysis of the same data based on a set of comparisons like that shown in full in Figure 7. It can be seen from the first two links that Alan's conceptual system is understood by Linda and Cynthia. The third link indicates that Alan's and Linda's conceptual systems are similar on this topic. However, all three seem to be able to understand and empathize with each other.

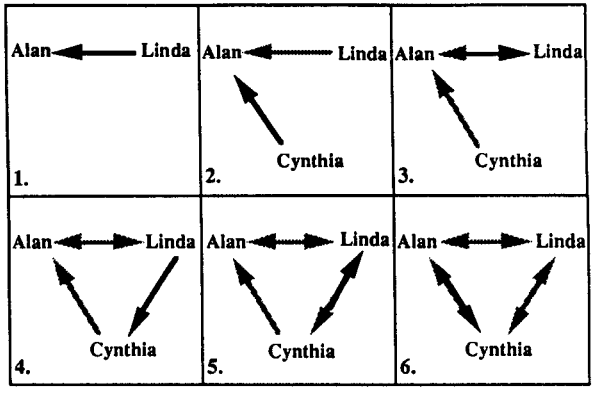

FIGURE 10 Socionet of relationships between people's conceptual systems.

CONCLUSION

The methodology described in this article provides facilities for revealing the similarities and differences in the personal construct systems of different people, or the same person at different times, construing a domain defined through common elements. It can be used to focus discussion between people on those differences between them that require resolution, enabling them to classify them according to whether they are differences in terminologies, levels of abstraction, and so on.

Note that the derivation of consensual, corresponding, conflicting, and contrasting constructs is completely automatic, being based solely on the data in the grids. This derivation is done by a computer program, not an experimenter, and its basis can be demonstrated clearly to the people through computer output such as the difference grid shown in Figure 6. Thus, no opinions are being expressed about the correctness of the use of the constructs and terminology. It is open to the people to consider, discuss, and explain these differences, changing or retaining them as they wish.

The methodology promotes the full exploration of the conceptual framework of a domain by encouraging people to operate in a brainstorming mode as a group, using differing viewpoints to develop a rich framework. It avoids the social pressures that force an invalid consensus by providing objective analysis of separately elicited conceptual systems.

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