SNAKES VERSUS LADDERS: A VALIDATION OF LADDERING TECHNIQUE AS A MEASURE OF HIERARCHICAL STRUCTURE

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Laddering technique has become a widely applied method for accessing superordinate or core constructs in personal meaning systems since its introduction by Hinkle in 1965. In spite of this popularity, however, few efforts have been made to validate the technique, and some critics have begun to question whether it actually converges on more abstract core features of a respondent's construct system. To address these concerns, we conducted laddering interviews with a diverse group of 103 university students, analyzing the structure, process, and content of the ladders they produced. Evidence generally supported the method's validity. More concrete prompts required more hierarchical levels to converge on core themes, and theoretically more tacit or preverbal superordinate constructs were rated as more difficult to put into words, required longer latency to do so, and were considered more important to respondents than subordinate constructs from the same ladders. Furthermore, a content analysis of the ladders indicated that superordinate constructs more frequently reflected central existential themes of purpose and meaning, whereas subordinate constructs more commonly reflected more superficial attitudes and interests. We concluded by providing descriptive data on various patterns of laddering structure (e.g., self-preferred-self discrepancy, crossover conflict) in this large sample of nonclinical ladders, and offered 10 practical recommendations to assist future users of the method to do so more artfully.

Cognitively oriented constructivists emphasize the organization of personal knowledge systems whose interrelated constructs jointly constitute an ecology of meaning that defines each individual's unique way of organizing the psychological world (Neimeyer, 1995b). A common feature of the models devised by these theorists is the hierarchical

nature of such meaning systems. Some of these constructions are viewed as relatively stable superordinate (Kelly, 1955/1991), core-organizing principles (Mahoney, 1991) or schemas (Bricker, Young, & Flanagan, 1993), while other constructions are viewed as more fluid subordinate, or peripheral attitudes toward the self and world (Guidano & Liotti, 1983). This distinction between core and peripheral constructs is important in any context that seeks to promote self-exploration and transformation, such as psychotherapy, insofar as the former tend to modulate the amount of change that is possible in the person's sense of self (Kelly, 1955/1991). Thus, constructivist assessment strategies (Neimeyer, 1993a) have been particularly concerned with elucidating the core features of personal meaning systems in both basic and applied settings (Winter, 1992).

Our primary goal in the present study was to examine one such strategy, laddering technique (Hinkle, 1965), which has been extensively used within personal construct psychology (Fransella & Bannister, 1977) to access core features of an individual's construing. In particular, we sought to address criticisms of the method (Butt, 1995) by providing evidence that laddering does indeed elicit core constructions that are distinguished from more peripheral constructs in ways that are compatible with constructivist theory. Secondarily, by conducting the first large-scale empirical study of laddering since its initial development, we hoped to formulate some practical heuristics that could assist future users in applying and interpreting the method.

LADDERING: CONCEPTUALIZATION AND CRITICISM

Laddering was devised by Hinkle (1965) as a "hierarchical technique for eliciting the superordinate constructs of the preferred self hierarchy" (p. 32).[1] Although it represented a bold new methodological development, it was in fact only one of several novel methods he introduced as means of pursuing his primary purpose: the sweeping reformulation of the whole of personal construct theory from the stand-point of a theory of

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[1]Interestingly, Hinkle himself never used the word "laddering" or any related term to describe his method. Instead, the term seems to have been introduced by Bannister and Mair (1968), who published an extensive summary of Hinkle's dissertation in their book reviewing early research in personal construct theory. As a relevant aside, it is unfortunate that Hinkle's dissertation remains unpublished except in this summary form, as it is brilliantly written, thoroughly reflexive, and bristling with perspicacious theoretical and clinical hypotheses that remain as cogent and researchable today as when they were first formulated.

implications.[2] Each of these other techniques—implications grids and resistance to change grids—has been featured in classic research programs within personal construct theory (Fransella, 1972), and validational research on these methods has been conducted by subsequent investigators (Dempsey & Neimeyer, 1995; Landfield, Stefan, & Dempsey, 1990). In comparison, although laddering technique has been widely adopted by applied constructivists (Costigan, Closs, & Eustace, 2000), it has been the object of little validational research to date.

A brief description of the method will convey some of the reasons for its practical appeal. Laddering essentially represents a form of recursive questioning, whose aim is to elucidate the higher-order implications of a construct offered by a client or research participant. For example, laddering might proceed from an intriguing, but ambiguous self-description volunteered by a client in psychotherapy ("I've always been a pretty *laid back* person"), or a decisional impasse expressed in a career consultation setting ("I know I should take this *sales job*, but I just can't seem to make myself do it"). Alternatively, an initial construct might be prompted by offering a respondent a "triadic sort" of experimenter-selected elements (e.g., three types of automobiles, three family members) and instructing the respondent to formulate a way in which two are alike and different from the third (Fransella & Bannister, 1977). In each case, the questioner would elicit the contrast to the initial construction by asking, "What is the opposite of that?" to which the person might respond, for example, by saying the opposite to *laid back* for him is *uptight*. This dimension (*laid back* vs. *uptight*) would then become the first "rung" in the ladder of personal constructs. The investigator would follow by asking the respondent to indicate with which side of this construct the person would *prefer* to be associated (e.g., *laid back*), and then ask "Why?" or "What is the advantage of that?" This theoretically ladders up to the next higher order construct (e.g., "because then I'm *in control of my emotions*"), to which the investigator elicits a further contrast (e.g., *out of control of my emotions*), another preference, and an associated reason by repeating the cycle of questioning at each new rung. Questioning usually proceeds in this way until the respondent is unable to articulate an answer to the ultimate "why" prompt, or until his or her response represents a simple

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[2]This reformulation was remarkably prescient in some respects, edging a traditional Kellian view of construct systems in directions that evoke connectionist images of "neural nets" currently being modeled by cognitive scientists (Mahoney, 1991). However, our methodological focus in the present article prevents us from pursuing the conceptual implications of Hinkle's audacious proposal beyond inviting the attention of other investigators to this parallel.

rewording of the previous construct. The result is typically a multilay-
ered hierarchy of personal meanings, which often seems to convey
something of the higher order (superordinate) issues or values im-
plied by the more concrete or specific constructs with which the exer-
cise began. An example of a completed ladder constructed by one of
the participants in our study appears in Figure 1.

Clear reasons for the popularity of laddering are its considerable
flexibility and perhaps deceptive simplicity,[3] factors that have encour-
aged its use in a broad range of research and applied contexts. For
example, researchers have used the procedure to assess construct change
in stutterers across the course of treatment (Fransella, 1972), to ensure
adequate sampling of self-relevant constructs related to issues of death
and dying (Krieger, Epting, & Leitner, 1974; Neimeyer, 1994), and as a
means of eliciting cognitive maps in organizational consultation (Hill,
1995). Laddering has also been used in studies concerned with envi-
ronmental and architectural design (Honikman, 1976), business appli-
cations (Stewart & Stewart, 1981), career counseling (Cochran, 1987),
and individual (Rowe, 1983) and family therapy (Feixas, 1992; Neimeyer,
1985). In addition to its formal research application, the use of laddering
in applied settings has proliferated as a function of its presentation in
numerous introductory personal construct texts (Botella & Feixas, 1998;
Burr & Butt, 1992; Dalton & Dunnett, 1992; Fransella & Bannister, 1977),
and its occasional innovation to address particular clinical concerns
(Neimeyer, 1993b). In each case, the appeal of the method to clinicians
and researchers lies in its presumed capacity to access increasingly
central and presumably important constructs as an aid to understand-
ing and perhaps facilitating change in personal or shared meaning
systems. Likewise, laddering tends to have a powerful draw for the
persons whose systems of meaning are being explored by the method.
As Hinkle (1965, p. 34) noted,

> Subjects were extremely interested and involved with this part of
> the experimental procedure, because—in effect—they are being asked
> to delineate some of their most fundamental commitments in their
> present life. They are at the same time rank-ordering these commit-
> ments in terms of a scale of values—or overarching principles of

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[3]The apparent straightforwardness of laddering is both an asset and liability, on
the one hand promoting its use, but on the other potentially beguiling would-be users
into a false sense of confidence in their ability to use the method. Much like other
basic interviewing skills such as reflective listening, the recursive questioning that
constitutes laddering can be handled adroitly or clumsily by the interviewer, suggest-
ing that skill in the use of the technique should be cultivated rather than assumed.
We return to some practical heuristics to facilitate use of the method following the
presentation of our formal study.

Construct Pole A	Construct Pole B	Difficulty	Importance	Latency
Have a belief, a focus for life (S, P)	Indifferent attitude toward world	6	5	11 sec.
Direction, goal to work toward (S, P)	Listless	2	5	12 sec.
Structured (S, P)	Unstructured	4	6	6 sec.
Stability in life (P)	Chaos (S)	3	5	9 sec.
Support (S, P)	No support	1	4	2 sec.
Close-knit family (S, P)	Isolated	1	6	6 sec.
Having a family (S, P)	Being a bachelor	2	6	5 sec.

FIGURE 1   Illustrative ladder from the current study, completed by a 26-year-old, married man majoring in education. Ladder began with the construct: *having a family vs. being a bachelor.* (*Notes*: Solid lines join two poles of ladder at each rung. Ascending arrows signal respondent's higher order rationale for his preference, and dotted lines join implicit, nonpreferred poles. P represents the respondent's preferred-self placement on each construct, elicited in the course of laddering, and S represents his actual-self placement, elicited following completion of entire laddering and rating procedure. Difficulty of articulating the construct was rated on a 1 (easy to put into words) to 7 (hard to put into words) scale, and its subjective Importance was rated on a similar 1 (unimportant) to 7 (very important) dimension. Latency represents the number of seconds elapsed from the point of the investigator's "why" prompt to the beginning of the respondent's answer.)

> choice. . . . Constructs functioning at this level of superordination are of fundamental importance; an awareness of them is essential for understanding the world of another human being—or ourselves.[4]

[4]Indeed, the first author had the slightly unnerving experience not long ago of conducting a 15-minute laddering interview with a recently divorced man, who was struggling painfully with whether or not to "commit" to his current lover in the face of her increasing insistence. Laddering from the construct of *marrying vs. not marrying*, he quickly reached core issues concerning perceived *constraint* and profound *guilt*. Although his remark, "Now the real therapy has begun!" was at one level gratifying, it led me to wonder what we had been doing for the preceding six sessions!

Despite the general enthusiasm for the method, however, occa-sional voices of caution have been raised regarding the key assumption that laddered constructs converge on core features of system struc-ture. In their original publication on the method, Bannister and Mair (1968) noted that asking "why?" is "not a guaranteed eliciter of super-ordinates" (p. 202). Likewise, Fransella and Bannister (1977) warned that if "our questioning was badly formulated and if we failed to no-tice the comments of the subject, she might ladder downwards, giving more subordinate constructs rather than superordinate constructions" (pp. 93–94). More recently, Leitner (1995) questioned the same premise, suggesting that the assumption of increasing superordinacy had not been tested adequately, although he was careful to note that "clini-cally interesting and worthwhile hypotheses can be derived . . . even if this basic assumption is invalid" (p. 68). Perhaps the sharpest skepti-cism to date has been voiced by Butt (1995), who argued that the "procedure frequently produces snakes as well as ladders, going both up and down the system in a looping and circular fashion" (p. 229). To date, the scant evidence for the method's validity that is available derives largely from Hinkle's (1965) pioneering study, in which laddered constructs produced by 28 students were found to have wider ranges of implication and greater resistance to change than other presumably more subordinate constructs in their systems. Some further supportive evidence derives from the recent study conducted by Costigan and her associates (Costigan et al., 2000), who found that laddering about changing work roles proceeded as expected for a group of 10 psychi-atric nurses trying to tease out the implications of their changing work roles. However, these same authors apparently encountered difficul-ties when they used the method to prompt an in-depth study of the meaning of "caring" for critical care nurses, perhaps because the clearly self-relevant constructs with which the interview began were already sampled from highly superordinate ranges of the participants' con-struct systems. In view of the fragile empirical base on which laddering is grounded, Hinkle's (1965, p. 54) injunction remains as true to day as when he completed his initial study: "The construct implication . . . methodologies [including laddering] obviously require experimental cross-validation using various treatment conditions within subjects, and perhaps various non-verbal behavior correlates as well."

To provide such cross-validation, and address the concerns about laddering raised by its critics, we undertook the first large-scale study of the validity of the technique as a measure of the hierarchical struc-ture of construct systems. In particular, we sought to test five hy-potheses bearing on the structure, process, and content of laddering:

1. *Ladders originating in comparisons of more concrete elements (films seen by the respondent) will encompass more hierarchical levels than those originating in the comparison of more abstract figures (e.g., members of the respondent's family).* This structural hypothesis is based on the rationale that if laddering validly accesses a hierarchy of implied higher-order meanings, then it should reflect the greater "distance" required to link concrete versus abstract elements to core structures.

2. *Final (superordinate) constructs in the ladders will be rated as more difficult to formulate in words than initial (subordinate) constructs.* This process hypothesis follows from Kelly's (1955) contention that core constructs are often preverbal, bearing on basic maintenance processes that elude simple articulation. Similarly, it accords with the views of contemporary constructivists that the deep structure of personal meaning systems is often tacit or difficult to formulate in public language (Burr & Butt, 1992; Guidano, 1991; Mahoney, 1991; Neimeyer, 1995c).

3. *Respondents will display a longer latency in articulating final (superordinate) constructs in the ladders relative to initial (subordinate) constructs.* This is essentially a behavioral measure of difficulty of formulating core constructs in words, following the rationale described above.

4. *Higher-order (more superordinate) constructs will be rated as having greater subjective importance to respondents than initial (subordinate) constructs in their ladders.* Presumably, the content of core constructs will be more highly valued to participants, compared to those that are more peripheral to their meaning systems. Previous research using repertory grids has provided some support for the utility of this explicit measure of construct ordination, although the evidence for it has been somewhat equivocal (Metzler & Neimeyer, 1988).

5. *The content of superordinate constructs will reflect basic existential themes pertaining to meaning, morality, and identity, whereas subordinate constructs in the ladders will be focused on concrete descriptions and relatively superficial interests.* This content prediction follows from Kelly's (1955) statements about the nature of core role versus peripheral structures. It also follows from the converging conceptualizations of contemporary constructivists that core ordering processes bear on schemas of purpose, selfhood, and basic rules of living (Mahoney, 1991), whereas specific attitudes and behavioral activities are more subordinate expressions of the person's meaning system (Guidano, 1991).

In addition to the primary intent to evaluate the validity of laddering as a measure of hierarchical structure, a second but important goal of the study was to sharpen guidelines for the administration and interpretation of the method, drawing on our experience with a large nonclinical sample. For example, Fransella and Bannister (1977) noted that "the elicitation and laddering of constructs is an art and not a science. So the examiner must expect to have to gain experience in this art and so learn to minimize his influence in determining the constructs given" (p. 108). Beyond the useful injunction to listen closely to what the respondent says (Fransella & Bannister, 1977), we hoped to draw on the experience of eliciting ladders from a large sample of participants to help future users make more artful use of the procedure. Furthermore, Neimeyer (1993b) has contended that "virtually all [ladders] provide a powerful lens for examining the problematic implicative structure of a client's choices" (p. 63). Such clinically significant patterns might include occasions when a client reverses her pole preference from one side to another of a construct hierarchy as she ascends (Neimeyer, 1993b),[5] or evidences extensive discrepancies between self and preferred-self placements on the respective poles of the constructs in her ladder (Winter, 1992). By providing some preliminary normative data on the incidence of such patterns in a large contemporary sample, we hoped to clarify the frequency of such patterns in a nonclinical population.

METHOD

Participants

One hundred and three university students (59 women and 44 men) took part in the study on a voluntary basis. Their ages ranged from 18 to 49 (M = 26.73, SD = 8). They were likewise diverse in ethnicity,

[5]An interesting illustration of this pattern of crossover conflict in the current study arose for a man in his late 20s, who indicated an initial preference for being *cooperative* as opposed to *violent*. However, at the next rung of the ladder he reversed his ideal, indicating his preference for the posture of *toughness* (vs. *easier in the long run*) associated with the *violent* pole of his initial construct. From this point on his choices were consistent, with implications of *toughness* including *earning your share* (vs. a *pissy backing off*), having *more self worth*, getting *more respect from others*, and *feeling good*. If transposed to a clinical context, such a ladder might lead to exploration of circumstances when an initial veneer of cooperation might give way to a tougher (or even violent) form of self-assertion, particularly when his esteem in his own eyes or that of others might feel threatened.

with 72 white, 28 African American, 2 Hispanic, and 1 Asian American, reflecting the demography of the urban institution from which they were sampled.

Procedures

Students were approached in their introductory psychology classes and invited to participate in a "study of belief structures" in exchange for experimental credit. Those who volunteered were contacted by one of two graduate student experimenters (one man and one woman) who arranged a private session with each participant to conduct the laddering interview (see below). Interviews lasted approximately 20 to 30 minutes in each of the two conditions, and were supervised by the first author.

Film Condition. To assess construct ladders originating from more concrete prompts, 51 of the participants were assigned randomly to a condition in which they were asked first to nominate three recent films or movies they had seen. They then were requested to compare and contrast these using the "difference method" (Neimeyer, Neimeyer, Hagans, & Van Brunt, 2001) to generate the initial construct dimension from which laddering began. For example, one participant selected *The Flintstones*, *Jumanji*, and *Seven*, describing the first two as comedies and the third as drama. He then laddered (in response to the procedure summarized in the introduction) to constructs of "laughter vs. seriousness," and "escaping from reality vs. true to life," and continued through several other levels to ultimate themes of "pessimism vs. optimism" and "feeling bad vs. feeling good." Following elicitation of the ladder, participants completed subjective ratings of "difficulty" and "importance" as described below, and then were asked to place their "actual selves" on the construct poles with which they were more closely aligned, complementing the "preferred self" placements elicited in the course of laddering itself.

Family Condition. To assess construct systems originating from a more abstract prompt, 52 students were assigned to a condition in which they were asked to consider three elements—their mother, their father, and themselves—and describe a way in which two were alike and different from a third. Laddering then proceeded as in the film condition, concluding with the additional measures described below.

Measures

Ratings and Latency.   Upon completing the ladders, participants were asked to rate the "difficulty" of articulating each construct in words, on a 1 (easy to put into words) to 7 (hard to put into words) Likert-type scale. This represented a subjective measure of how "tacit" or "preverbal" each construct was, to permit testing of the hypothesis that more superordinate constructs would be more difficult to symbolize adequately in language. A nonverbal behavioral index of this same difficulty was derived from the interviewer's recording of "latency," reflecting the number of seconds the participant required to begin to formulate each successive construct in the ladder following the completion of the "why" prompt to interrogate his or her preference. Participants were also asked to rate the subjective "importance" of each construct in the ladder on a 1 (unimportant) to 7 (very important) scale. Finally, they were asked to place their "actual selves" on each of the constructs, yielding a measure of self/preferred-self discrepancy, representing the number of times they placed these self-elements on contrasting poles of the construct dimensions. Instances of "crossover conflict," in which a participant inverted his or her preferences for one side or the other of the construct hierarchy, were noted subsequently during data analysis. A completed ladder from this study, accompanied by these additional measures, appears in Figure 1.

Content Coding.   Finally, a content analysis of constructs was performed to test the last hypothesis, namely, that superordinate constructs at the top of the ladders would address more existential and moral themes than would subordinate constructs at the bottom of the ladders, which would address specific attitudes and concrete descriptions. We approached this task using the newly devised Classification System for Personal Constructs (CSPC) devised by Feixas, Geldschlager, and Neimeyer (2001), a scheme for content coding of whole construct dimensions (e.g., authentic vs. hypocritical) into one of six overarching categories (e.g, *Moral*), each of which is further subdivided into several subcategories (e.g., *sincere vs. insincere*). A distinctive strength of this system is that it is arranged on a dimension of abstract/general to concrete/specific, requiring coding of each construct into one of the six mutually exclusive categories (*Moral, Emotional, Relational, Personal, Intellectual/Operational, and Specific Interests*). However, a possible limitation of this system is that it was designed only to code those dispositional constructs that might be assigned to another person in a repertory

grid, omitting both potentially core constructs describing one's own life purposes and more superficial constructs describing physical characteristics or roles. Thus, for the purpose of our study, we supplemented the original six global categories in the CSPC with two additional categories: *Existential* and *Concrete Descriptors*, in effect extending the hierarchical coding system by one category in each direction, increasing the superordinate and subordinate range of the system. *Existential* constructs were defined as those reflecting the subject's attributions regarding basic life purposes or meanings, such as *has a purpose vs. meaningless, seeks fulfillment vs. wastes life, full life vs. empty, growth vs. stagnation, self-actualizing vs. neurotic, useful vs. useless*, and *has a belief vs. no foundation. Concrete descriptors*, on the other hand, address physical characteristics (e.g., *attractive vs. ugly*), social roles or positions (e.g., *has a family vs. single*), or specific behaviors (e.g., *goes to my school vs. goes to another school*). We then coded the most superordinate and subordinate construct[6] from each of the 103 ladders using the expanded set of eight categories to test our prediction of their differential content, as described above.[7]

Feixas and his colleagues (2001) reported very high kappa coefficients for the original six general categories (overall kappa of .95) based on a sample of 843 constructs drawn from the grids of 57 Spanish respondents. Kappa for the present study was lower (.74), but still quite respectable ($t = 23.80$, $p < .01$), especially in view of the translation of the system into English, the addition of new categories, the smaller number of constructs we coded, and the use of the CSPC without the benefit of extensive training by the system's originators.

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[6]Operationally, the highest (most superordinate) and lowest (most subordinate) constructs on the "family" ladders were compared to the highest and *second lowest* constructs on the ladders elicited in the film condition. We chose this test of our hypothesis based on our observation that the initial constructs in the latter condition were often very concrete and specific to the cinematographic context of the initial triad of elements (e.g., action story vs. love story), thereby placing them outside the range of application of the construct coding system. By comparison, the next constructs in these same ladders were less context-bound. Using the second most subordinate constructs in this study in effect yielded a more conservative test of our hypothesis regarding content than would a direct comparison of the first and last constructs in the film hierarchies.

[7]After consultation with Feixas, we also added a new subcategory to the *Personal* domain, entitled *self-acceptance vs. self-criticism*, with examples including *self-worth vs. low self-esteem*, *self-confident vs. insecure* and *believes in self vs. doubts self*. Because the relatively small number of constructs we coded (206) precluded our analyzing the data at the subcategory level, however, the inclusion of this finer differentiation does not affect the results of the current study.

RESULTS

Preliminary analyses

The mean number of construct levels elicited in these 103 ladders was 7.11 (SD = 1.98), but with a considerable range from 3 to 16 across participants. This average was slightly lower than the 8 to 12 constructs reported by Hinkle (1965), but in line with the experience of subsequent investigators in the UK (Bannister & Mair, 1968). There was no relationship between the gross number of hierarchical levels elicited and demographic variables of ethnicity, gender, or age in the present sample.

Primary Analyses

To test the structural hypothesis, which stated that more hierarchical levels would be elicited from relatively concrete than from abstract initial triads of elements, we compared the mean number of constructs elicited in the family (M = 6.66, SD = 1.27) versus the film (M = 7.66, SD = 2.50) conditions. A one-way between-subjects analysis of variance (ANOVA) demonstrated that these means were reliably different ($F_{1, 101}$ = 6.67, p = .011), as predicted.

We then turned to within-subjects analyses of the remaining measures. Because individual construct hierarchies ranged widely in the number of constructs they spanned, we compared initial/subordinate, intermediate/median, and final/superordinate constructs in a series of within-subjects analyses of variance on measures of difficulty, latency, and importance. As predicted, difficulty ratings were linearly related to superordinacy ($F_{1, 102}$ = 19.56, p < .001), with the means for initial (M = 2.37, SD = 1.57), intermediate (M = 3.06, SD = 1.51), and final (M = 3.59; SD = 2.17) constructs all significantly different from one another on Newman-Keuls post hoc testing (at p < .05). Similarly, latency tended to increase linearly as subjects ascended their ladders (F df = 4.56, p = .01), with post hoc testing revealing that the time taken to formulate initial constructs (M = 12.30 seconds, SD = 10.46) and intermediate constructs (M = 14.01, SD = 17.13), while not significantly different from one another, were both lower than the time required to articulate final constructs (M = 18.44, SD = 19.58). Thus, both analyses provided general support for the process hypothesis that superordinate constructs elicited by laddering would converge on more tacit or preverbal organizing themes in the person's meaning system.

In contrast to the above effects, subjectively rated importance displayed a slightly quadratic rather than linear trend with increasing superordinacy of constructs ($F_{1, 102} = 4.95$, $p = .046$). In this case, mean scores for initial ($M = 5.44$, $SD = 1.85$) and intermediate ($M = 5.96$, $SD = 1.49$) constructs were significantly different, but the rating for final constructs ($M = 5.83$, $SD = 1.39$) could not be distinguished from the others by post hoc testing. Thus, the hypothesis that greater superordinacy would be correlated with greater perceived importance of the construct received only partial support.

Finally, content coding of constructs revealed a number of differences between subordinate and superordinate constructs derived from the ladders ($F_{1, 204} = 5.57$, $p < .001$). As depicted in Table 1, Neuman Keuls post hoc testing ($p < .05$) revealed that a significantly higher percentage of superordinate than subordinate constructs fell into the *Existential* category, with a trend ($p < .10$) toward higher percentages of *Moral* classification among the superordinate constructs as well. Conversely, a higher percentage of subordinate than superordinate constructs were classified under *Specific Interests* and *Relational* categories. (These same effects were reflected in the results of Wilcoxon signed ranked tests applied to superordinate and subordinate constructs in each content category, with z statistics and associated p values depicted in Table 1.) Only a small percentage of either type of constructs fell into *Concrete Descriptors,* precluding a strong comparison. Thus, the hypothesis that laddering would elicit superordinate constructs that differed from their subordinate counterparts in theoretically predictable ways at the level of content was generally supported.

TABLE 1 Mean percentages (and frequencies) of superordinate and subordinate constructs by content category

Content category	Superordinate constructs (%)	Subordinate constructs (%)	Z	P
Existential	17.5 (18)	1.9 (2)	3.71	.01
Moral	12.6 (13)	4.9 (5)	1.89	.06
Emotional	18.4 (19)	22.3 (23)	–.67	.51
Relational	12.6 (13)	34.0 (35)	–3.39	.01
Personal	29.1 (30)	21.4 (22)	1.33	.18
Intellectual	5.8 (6)	3.9 (4)	.71	.48
Specific interests	0.0 (0)	4.9 (5)	–2.24	.03
Concrete descriptors	3.9 (4)	6.8 (7)	–.91	.37

Note: In cases of discrepancy, the classification assigned by the more senior rater was used in subsequent analyses. Overall kappa for two raters across all categories was .74.

DISCUSSION

By closely examining the structure, process and content of construct hierarchies produced by over 100 respondents, we found general support for the view that laddering technique does indeed access more superordinate or core features of personal meaning systems. At a structural level, relatively concrete prompts related to films, which were more theoretically distant from superordinate themes, required more hierarchical steps to converge on core structures than did more abstract prompts having to do with the self and intimate others. At a process level, both difficulty ratings and latency to respond suggested that superordinate constructs accessed by laddering were experienced as more tacit, less amenable to verbal articulation, than were the subordinate constructs drawn from the same respondents. Ratings made by the participants themselves also suggested the increasing importance of higher-order constructs, although this effect held only through the mid-range of the construct hierarchies. Metzler and Neimeyer (1988) noted that this index of construct centrality, while valuable, had only modest evidence of concurrent validity with other measures of hierarchical structure, and the present somewhat equivocal finding might be viewed as underscoring their concerns. Finally, at the level of content, the superordinate constructs evoked by laddering tended to reflect central existential themes of meaning and purpose to a greater extent than subordinate constructs in the same ladders, which in turn concentrated more frequently on more superficial values and interests. Taken as a whole, then, these findings provide the first general evidence for the construct validity of laddering as a measure of hierarchical structure since Hinkle's (1965) pioneering work, and should give encouragement to future users looking for a tool to elucidate core features of people's meaning systems.

Do these findings imply that the cautions and criticisms of authors such as Leitner (1995) or Butt (1995) can be disregarded? By no means. Indeed, our own data reflect that, although the trend toward superordinancy is evident across several methodologically distinct measures as one "ascends" respondents' ladders, considerable variability on each measure exists at the individual subject level. This observation, in combination with our experience in the hundred laddering interviews conducted for the present study—and many more conducted in clinical and consultation contexts—suggests a number of strategies that could help future users of the method ensure that the technique accomplishes its intended goals. We will therefore conclude with these practical recommendations.

RECOMMENDATIONS FOR FUTURE USERS OF LADDERING TECHNIQUE

In keeping with our goal of not only validating, but also refining laddering technique, we formulated 10 heuristics to guide future users in both the administration and interpretation of the method. These are briefly noted as a series of recommendations as follows:

1. *Select a starting point that permits the development of clear constructs.* The considerable flexibility of laddering allows nearly anything—from acquaintances, to work settings, to alternative courses of action—to be used as elements to generate the initial construct in the ladder. Indeed, one of the striking informal findings of our study was that even initiating the ladder with the comparison of seemingly impersonal elements (such as films the respondent had seen) typically led to highly self-relevant superordinate themes at higher levels of the person's construct hierarchy. Nonetheless, care needs to be taken to select elements that are at the same logical level; asking a teacher to ladder from a comparison of *subjects I teach*, *a problem child*, and *the school's bad weather policy* is likely to prove complicated to even the most complex construer. If the interviewer chooses to begin with a theme or phrase within the person's naturally occurring discourse (e.g., being *committed to my partner*), it is usually helpful to ask for the opposite or contrast to that idea (e.g., *betraying my partner*, or *committed to my parents*). In all cases it is important for the interviewer not to assume the interviewee's response, or simply use a dictionary antonym.

2. *Solicit, rather than assume, the interviewee's pole preference.* Although the interviewer might consider the choice between two poles such as *enjoyment vs. seriousness* to be obvious, experience teaches that such a presumption can be dangerous. Thus, in all cases, it is important to actually ask, "Which do you prefer?" or some minor variation, such as the incomplete sentence, "And your preference would be . . . " or "Where would you rather see yourself?" Wrong guesses about the respondent's preferences can suggest the socially approved response, and curtail disclosure of precisely those idiosyncratic patterns of meaning making that are of interest, especially in clinical contexts.

3. *Note the occurrence of negative preferences.* From time to time, interviewees will justify a particular pole preference, not in terms of its positive advantages, but because it enables them to escape

the strongly negative implications associated with the contrast pole. For example, one respondent noted that he preferred *sameness* as opposed to *a different life*, not because the former carried any especially positive connotations, but because the alternative was *chaos* as opposed to *something he could handle*. Novice users of laddering will sometimes become confused at this point, aligning the rationale for the negative preference (*chaos*) with the preferred pole (*sameness*) rather than its contrast. In addition to urging caution in recording such higher order constructs in the appropriate column of the construct hierarchy, we recommend that interviewers make a notation of such instances (perhaps by extending the upward-linking arrow [see Figure 1] from the nonpreferred pole rather than the preferred one). Especially if this pattern is prevalent in a given ladder, it can signify a series of life choices predicated on avoidance rather than the more satisfying pursuit of valued activities and ways of being.

4. *Prompt the interviewee to condense lengthy elaborations.* In response to the probe, "Why would you prefer that?" respondents will occasionally give paragraph-long answers. On the one hand, these highly elaborated responses can challenge the novice interviewer to distill the essence of the subject's response, while on the other hand such replies can prove cumbersome if used in their entirety in the subsequent laddering interview. This is particularly the case when the answers are multidimensional, in effect referring to several distinct constructs in a cluster, for which no clear contrast can then be formulated. Our recommendation is to note the essential terms in the subject's response, and then ask, "Out of these ideas, is there one that best summarizes what you are trying to convey?" or "Is there one of these ideas that stands out as more important than the rest?" Alternatively, the interviewer can prompt the respondent by asking, "Can you think of a way to summarize the gist of what you have just told me?" This typically leads to a more crisply formulated construct pole that permits the elicitation of a clear contrast, prompting the articulation of a further preference, and the development of another higher order implication.

5. *Refrain from commenting on constructs until the ladder is completed.* Noting important process observations in the margins of the laddering form (e.g., *moisture appears in client's eyes* or *client remarks, "I've never acknowledged that to anyone"*) anchors this material for further exploration without losing the momentum of the interview at a critical juncture. Of course, there are points at

which laddering might appropriately be suspended altogether, but it is our general observation that if the interview is conducted sensitivelyand with appropriatenonverbal responsiveness, then returning to red flags of important process is relatively straightforward.

6. *Request placement of the actual (or present) self-element only after the laddering is finished.* Immediately asking, "And where would you actually see yourself at present in terms of this two positions?" after elicitation of a construct preference frequently disrupts the continuity of the laddering procedure, and should be discouraged for this reason alone. But it can also evoke a paralyzing self-consciousness on the part of the subject, especially in cases where the self and preferred-self are split on contrasting poles of the construct. Our data suggest that such splits are not uncommon, occurring on approximately 30% of all constructs in these nonclinical ladders.[8] Because such discrepancies provide a useful index of diminished self-esteem in the subject's own terms (Winter, 1992), they are nearly always worth exploring, at least in clinical or counseling contexts—but only after the laddering per se is completed.

7. *Use imagery or metaphor to stretch the capacity of language to symbolize highly superordinate dimensions.* Although the design of the present study precluded our doing so, in clinical applications when clients seem unable to formulate further linguistic responses to our "why" prompt, we often ask, "Can you think of an image or metaphor that conveys why you are drawn to that alternative?" The answers, often given after a reflective pause (e.g., "It's just a very solid feeling," or "When I do that, I have a sense of flow or oneness with life"), often seem to convey highly superordinate themes that elude simple verbal formulation in symbolic speech. However, once captured in imagistically rich figurative language, a final contrast can often be evoked (e.g., "Like I'm crumbling inside," or "A kind of cosmic disconnection, almost an excommunication") that provides deep insights for therapist and client into the latter's central life projects.

[8]Although the present sample of 103 ladders falls short of providing a satisfactory set of norms for this method, our relatively large sample of nonclinical grids can at minimum serve as a useful base of comparison for future studies. In our data, a mean of 2.08 instances of self/preferred self discrepancy (*SD* = 1.86) was found in the ladders, with a range of 0–8. Seventy four percent of the respondents reported at least one such split. Thus, it is probably wise to recognize that some level of discrepancy between one's actual and ideal selves is common, although worth discussing, in contexts that permit individualized exploration of respondents' meaning systems.

8. *Stop laddering when constructs begin to repeat themselves with trivial variation.* The circularity noted by some critics of laddering might often result from inattention to cues that the respondent has in fact reached the top of the hierarchy. In addition to the longer latency to respond and difficulty articulating superordinate constructs noted in this study, such cues include repetition or minor rephrasings of constructs already offered, usually at the immediately preceding step. Our recommendation at such points is to ask the respondent, "Does this seem to reflect quite a different idea for you, or does it seem to represent something rather similar to what your were saying before?" If respondents endorse the latter, we will then ask whether we seem to have reached a point of completion, or whether there is some additional advantage to their preferred position that they would like to explore. In other words, we signal our intuition that the ladder might be reaching a natural conclusion, but allow the respondent to overrule this opinion if inclined to do so.

9. *Discuss significant moments of the laddering procedure.* After completing the ladder, we almost invariably (except in controlled experimental settings like the present study) invite a discussion about anything subjects "noticed or were interested in" during the laddering interview. We then follow this with our own observations, wondering aloud what they made of significant hesitations, reversals of decisions, or points of self/preferred-self discrepancy. Another such pattern is the *crossover conflict* configuration noted in the introduction to this article, in which the respondent changes his or her preference for one side of a hierarchy to its opposite in the course of laddering to the next level. In this study of a nonclinical sample such crossovers were quite rare, occurring in less than 5% of all ladders. In clinical contexts, however, it is our impression that they are far more common, and often point to essential tensions or points of ambivalence or indecision within the person's governing system of meaning (Neimeyer, 1993b). We therefore would encourage sensitive discussion of the issues entailed in such conflict when it arises, and suspect that research would identify it as a more common feature of clinical populations.

10. *Process the ladder using facilitative questions.* Although the completion of a ladder can cultivate useful insights for both interviewer and interviewee, it is frequently appropriate to help users process it further through the use of gentle probes once the formal interview has ended. For example, Neimeyer (1993b) has sug-

gested asking such facilitative questions as: "What central values are implied by the ideas you align yourself with at the upper end of the ladder? How are these expressed in specific behaviors, traits, or roles you exemplify at the lower end of the ladder?" "Were there points at which you hesitated before assigning a pole preference? What might have been going on for you at that point?" "Who in your life most supports/most resists the preferences you describe?" "Which of these preferences and values are visible/invisible to others? To whom?" "What could be some positive connotations for the nonpreferred poles?" and "Have there ever been times when you would have placed yourself/your values at the opposite poles of these constructs? What was your life like at that time?" The use of these questions in session, between consultant and client, or even among clients in a group, can be powerful in provoking further reflection. However, we have also found the presentation of such questions on paper to be a useful between-sessions prompt for further client-self exploration in a personal journal (Neimeyer, 1995a; Rainer, 1978).

CONCLUSION

As a convenient means of accessing core features of a person's meaning system, laddering technique has proven popular among constructivist psychologists for over three decades. However, mounting concerns about whether or not the procedure reliably elicits superordinate themes or constructs have yet to be answered by validational studies beyond the preliminary research of the measure's originator in 1965. Our study of over 100 nonclinical ladders begins to redress this problem, offering evidence that the superordinate constructs elicited by laddering differ from subordinate constructs in structural, process, and content dimensions in a way that accords with both personal construct theory and broader constructivist perspectives. In addition to providing support for the construct validity of the technique, we attempted to provide descriptive data on the frequency of important patterns (e.g., number of hierarchical levels, incidence of self/preferred-self splits, percentage of ladders showing a crossover configuration) as a base of comparison for future studies. Finally, we sought to formulate some concrete recommendations for new users of the method, in the hope that they will find it a more valuable tool in exploring the nuances of their interviewees' systems of personal meaning.

REFERENCES

Bannister, D., & Mair, J. M. M. (1968). *The evaluation of personal constructs*. London: Academic.

Botella, L., & Feixas, G. (1998). *Teoria de los constructos personales: Aplicaciones a la practica psicologica. [Personal construct theory: Applications to psychological practice.]*. Barcelona: Laertes.

Bricker, D., Young, J. E., & Flanagan, C. M. (1993). Schema-focused cognitive therapy. In K. T. Kuehlwein & H. Rosen (Eds.), *Cognitive therapies in action* (pp. 88–125). San Francisco: Jossey Bass.

Burr, V., & Butt, T. (1992). *An invitation to personal construct psychology*. London: Whurr.

Butt, T. (1995). Ordinal relations between constructs. *Journal of Constructivist Psychology, 8*, 227–236.

Cochran, L. (1987). Framing career decisions. In R. A. Neimeyer & G. J. Neimeyer (Eds.), *Personal construct therapy casebook* (pp. 261–276). New York: Springer.

Costigan, J., Closs, B., & Eustace, P. (2000). Laddering: Theoretical and methodological contingencies. In J. W. Scheer (Ed.), *The person in society* (pp. 150–159). Giessen, Germany: Psychosozial Verlag.

Dalton, P., & Dunnett, G. (1992). *A psychology for living*. New York: Wiley.

Dempsey, D. J., & Neimeyer, R. A. (1995). Organization of personal knowledge: Convergent validity of implications grids and repertory grids as measures of system structure. *Journal of Constructivist Psychology, 8*, 251–261.

Feixas, G. (1992). Personal construct approaches to family therapy. In R. A. Neimeyer & G. J. Neimeyer (Eds.), *Advances in personal construct psychology* (Vol. 2, pp. 217–255). Greenwich, CT: JAI Press.

Feixas, G., Geldschlager, H., & Neimeyer, R. A. (in press). A system for the content analysis of personal constructs. *Journal of Constructivist Psychology.*

Fransella, F. (1972). *Personal change and reconstruction*. London: Academic.

Fransella, F., & Bannister, D. (1977). *A manual for repertory grid technique*. New York: Academic.

Guidano, V. F. (1991). *The self in process*. New York: Guilford.

Guidano, V. F., & Liotti, G. (1983). *Cognitive processes and emotional disorders*. New York: Guilford.

Hill, R. A. (1995). Content analysis for creating and depicting aggregated personal construct derived cognitive maps. In R. A. Neimeyer & G. J. Neimeyer (Eds.), *Advances in personal construct psychology* (Vol. 3, pp. 101–132). Greenwich, CN: JAI Press.

Hinkle, D. (1965). *The change of personal constructs from the viewpoint of a theory of implications.* Unpublished dissertation, The Ohio State University, Columbus, OH.

Honikman, B. (1976). Construct theory as an approach to architectural and envioronmental design. In P. Slater (Ed.), *Explorations of intrapersonal space* (Vol. 1, pp. 167–182). London: Wiley.

Kelly, G. A. (1955/1991). *The psychology of personal constructs*. New York: Routledge.

Krieger, S. R., Epting, F. R., & Leitner, L. M. (1974). Personal constructs, threat, and attitudes toward death. *Omega, 5*, 299–310.

Landfield, A. W., Stefan, R., & Dempsey, D. (1990). Single and multiple self implications for change grids: Studies of consistency. *International Journal of Personal Construct Psychology, 3*, 423–436.

Leitner, L. M. (1995). Dispositional assessment techniques in experiential personal construct psychology. *Journal of Constructivist Psychology, 8*, 53–74.

Mahoney, M. J. (1991). *Human change processes*. New York: Basic.

Metzler, A. E., & Neimeyer, G. J. (1988). Vocational hierarchies: How do we count the ways? *International Journal of Personal Construct Psychology, 1,* 205–217.

Neimeyer, G. J., Neimeyer, R. A., Hagans, C. L., & Van Brunt, D. (2001). Is there madness in our method? The effects of repertory grid variations on measures of construct system structure. In R. A. Neimeyer & G. J. Neimeyer (Eds.), *Advances in personal construct psychology* (Vol. 5). Westport, CT: Praeger.

Neimeyer, G. J. (1985). Personal constructs in the counseling of couples. In F. R. Epting & A. W. Landfield (Eds.), *Anticipating personal construct psychology* (pp. 201–215). Lincoln, NE: University of Nebraska Press.

Neimeyer, G. J. (1993a). *Constructivist assessment: A casebook.* Newbury Park, CA: Sage.

Neimeyer, R. A. (1993b). Constructivist approaches to the measurement of meaning. In G. J. Neimeyer (Ed.), *Constructivist assessment: A casebook* (pp. 58–103). Newbury Park: CA: Sage.

Neimeyer, R. A. (1994). The Threat Index and related methods. In R. A. Neimeyer (Ed.), *Death anxiety handbook* (pp. 61–101). Washington, DC: Taylor & Francis.

Neimeyer, R. A. (1995a). Client-generated narratives in psychotherapy. In R. A. Neimeyer & M. J. Mahoney (Eds.), *Constructivism in Psychotherapy* (pp. 231–246). Washington, DC: American Psychological Association.

Neimeyer, R. A. (1995b). Constructivist psychotherapies: Features, foundations, and future directions. In R. A. Neimeyer & M. J. Mahoney (Eds.), *Constructivism in Psychotherapy* (pp. 11–38). Washington, DC: American Psychological Association.

Neimeyer, R. A. (1995c). An invitation to constructivist psychotherapies. In R. A. Neimeyer & M. J. Mahoney (Eds.), *Constructivism in psychotherapy* (pp. 1–8). Washington, DC: American Psychological Association.

Rainer, T. (1978). *The new diary*. Los Angeles: Tarcher.

Rowe, D. (1983). *Depression: The way out of your prison*. London: Routledge.

Stewart, V., & Stewart, A. (1981). *Business applications of repertory grid technique*. London: McGraw-Hill.

Winter, D. A. (1992). *Personal construct psychology in clinical practice*. London: Routledge.