Toward a Synthesis of Listening Constructs: A Concept Map Analysis

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Scholars in the field of listening have raised concerns about the lack of an accepted definition of listening, of a theoretical base for listening research, and of the need to develop a consensus regarding the conceptualization of listening. This study used the "concept mapping" (CM) procedure to derive variables related to listening that could serve as a basis for developing a sound theoretical construct. A set of 98 items related to various aspects of the listening process was presented to 19 participants, who used an unstructured sorting procedure to indicate which items were most closely related to each other, followed by ratings of importance of each item to the construct of listening. The data were analyzed using multidimensional scaling and hierarchical cluster analysis, resulting in a 15-cluster visual map solution showing the relationships of the items to each other and the relative importance of the clusters. The clusters rated most important were critical listening, sensory impressions, context, composite process, and active listening. The other clusters were subception, overt response, empathy, organization, interpretation, information storage, auditory processing, input characteristics, subliminal cues, and nonverbal stimuli.

Although interest in listening as a field of study and research is at least 70 years old (see the landmark study by Rankin, 1926), there is as yet no universally accepted view regarding its definition and conceptualization. According to McKenzie and Clark (1995), "listening research is still focused on the process of identifying constructs that make up the phenomenon" (p. 31). It is not clear whether listening is comprised of a number of different constructs, or of different concepts, or if it is one construct comprised of a number of different concepts (McKenzie & Clark, 1995).

The lack of agreement about fundamental concepts and theoretical bases has made it difficult to identify the central issues as well as the boundaries of the field for purposes of teaching and research. It has also hampered the development of theories of listening, of curricula, and of tests of listening competence. Fitch-Hauser and Hughes (1992), who examined four widely-used listening tests, discovered considerable discrepancy among the listening components that the tests claimed to tap.

The purpose of this study was to analyze the disparate listening concepts and variables in the literature and to organize them into a coherent set of dimensions. The approach used was that of "concept mapping" (CM; see Method section below).

Current Conceptualizations of Listening

Modern rhetorical theorists have used several different approaches to conceptualizing listening, among them the critical listening of Richard M. Weaver, the comprehensive listening of I. A. Richards, and the empathic listening of Kenneth Burke and Marshall McLuhan (Floyd & Reese, 1987). Some writers have suggested that listening could be considered a hypothetical construct, defined as one for which there are no concretely observable acts (Barker, Barker, & Fitch-Hauser, 1987); or that it could be studied as a cognitive process tied to memory and information processing (Fitch-Hauser & Hughes, 1988), or regarded as an organizational construct (Gilchrist & Van Hoeven, 1994).

Furthermore, as Witkin (1990) found in her review of the state of the art of listening research, there has been no general consensus on the definition of listening, and no one theory about what listening is or how it occurs. She notes:

> A basic issue that has rarely been addressed by researchers is how well the concept of 'listening' plays the role of a hypothetical construct in theory building and research. . . .[T]heories and models exist that are not only contradictory but mutually exclusive . . . [and] there has been a lack of continuity in more than half a century of research to connect the efforts into a unified field of study. (p. 19)

In their examination of interpretations of 20 different scholars from 1925 to 1981, Wolvin and Coakley (1988) found many differences in the processes or elements encompassed by the definitions, terms used, symbols included, and specifications made. Some included only verbal stimuli, while others included nonverbal stimuli as well. Many were based primarily on speculation.

Glenn (1989) did a content analysis of 50 definitions of listening, using the first 16 described by Wolvin and Coakley (1988), and 13 others. She also included 21 definitions taken from speech communication texts, in which listening is usually treated as incidental to training in speech. Glenn's analysis will be discussed in the Interpretation section of this paper, below.

For several years various task forces of the International Listening Association (ILA) have addressed the problem of a definition of

listening that would be generally acceptable to scholars and teachers in the field. The latest formulation of a working definition was accepted at a special conference held in July 1994:

> Listening is the active process of receiving, constructing meaning from, and responding to spoken and/or nonverbal messages. It involves the ability to retain information, as well as to react empathically and/or appreciatively to spoken and/or nonverbal messages. (*ILA Listening Post*, 1995, p. 1).

Key words in that definition are active, receiving, constructing meaning, responding, spoken messages, nonverbal messages, retain information, empathically, and appreciatively. These will be referred to again in the Discussion section below.

The literature on listening concepts contains a multitude of words to describe the act of listening. This study used "concept mapping" (CM) as the means of organizing the variety of listening terms into a coherent set of categories. CM is a methodology developed by Trochim (1989a, 1989b) to help groups reach consensus about the specific issues related to some type of focus. The process has been used for many different purposes, from applied management consulting to traditional social science theory development. It is well-suited for an inductive approach to exploring and developing a theory of listening.

Method

Participants

There were 19 participants, selected in two phases. To explore the feasibility of the tasks, a group of five faculty members from the speech communication department at the University of Washington met for a session to sort and rate the items. This task, which was done individually, was completed in less than an hour, and demonstrated that the task was indeed feasible.

Subsequently, the materials were mailed to 14 other participants, recruited from among speech communication faculty at other universities, and through an e-mail chat line sponsored by members of ILA. Ten taught speech communication courses in universities in Alabama, Hawaii, Illinois, North Carolina, Ohio, Tennessee, Texas, and Washington; three were communication consultants in New Jersey, Rhode Island, and Virginia; and one taught high school English and speech courses in Washington.

Materials

Each participant received a packet of materials containing 98 numbered items related to various aspects of listening, typed individually on small cards; instructions for the sorting and rating tasks; a form for recording the items in each pile and labeling the piles, and a form for rating each item on a 5-point Likert-type scale of importance (See Procedure stepbelow).

The statements for this concept mapping were drawn from two working papers: Barker and Fitch-Hauser (1986, March); a list that had been presented by Wolvin[1] for discussion at a research task force of ILA, and a paper by Glenn (1989). The original pool contained 114 items, several of which were alternate forms of the same concept (e.g., interpret, interpreting, interpretation). After eliminating alternate forms (usually retaining the noun form), we had a set of 98 items that represented a broad spectrum of variables related to the speaker, the listener, and the processes of listening. (Experience with concept mapping has shown that 98-100 items is the maximum number feasible for most participants to deal with.) The final set is shown in Table 1.

Table 1
Listening Items for Concept Map

1 active
2 affective processes
3 alertness
4 analysis
5 appreciation
6 association
7 attention
8 auditory acuity
9 auditory fatigue
10 auditory processing
11 aural assimilation
12 bias
13 binaural
14 channel
15 cognition
16 comparisons
17 composite process
18 compressed (rate-controlled) speech
19 concentration
20 conclusions

(Table 1, continued)

21 conscious
22 constructs
23 context
24 covert response
25 credibility
26 critical listening
27 cues
28 decoding
29 delivery
30 discrimination
31 distraction
32 echoic memory
33 effort
34 emotional
35 empathy
36 evaluation
37 experiences (previous)
38 facial expressions
39 feedback
40 filters
41 following directions
42 gathering information
43 gestures
44 hearing
45 images
46 inferences
47 information processing
48 inputs
49 integration of experiences
50 intellectualizing
51 interpersonal
52 intrapersonal
53 interpretation
54 intonation patterns
55 long-term memory
56 masking
57 meaning
58 mental activity
59 message
60 monaural
61 motivation
62 nonverbal stimuli

(Table 1, continued)

63 organization
64 overt response
65 patterns
66 perception
67 phenomenology
68 purposeful activity
69 rate
70 recall
71 receiving
72 recoding
73 reorganizing
74 responding
75 retention
76 retrieving information
77 searching
78 seeing
79 selective process
80 sense receptors
81 sensory impressions
82 sequencing
83 short-term memory
84 sorting
85 sound waves
86 speaker
87 spoken language
88 storing information
89 subception
90 subliminal
91 sustaining
92 target
93 therapeutic listening
94 unconscious
95 understanding
96 values
97 verbal stimuli
98 voluntary

Procedure—Sorting and Rating

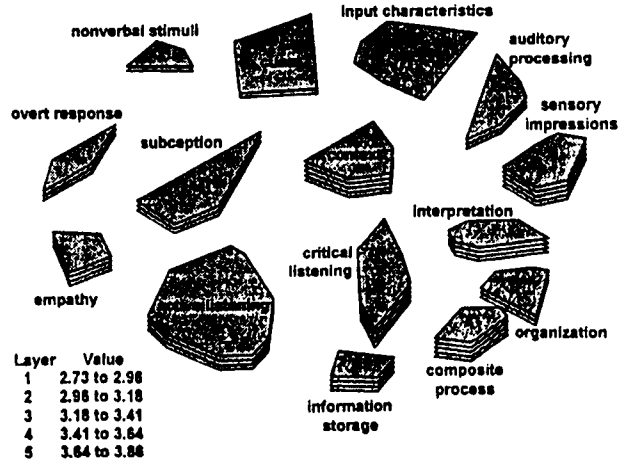
The unstructured sorting task followed procedures described by Rosenberg and Kim (1975), Trochim (1989a), and Weller and Romney (1988). In addition, each participant rated each statement on a 5-point

Likert-type response scale in terms of how important the item was to the construct of listening, where 1=relatively unimportant (compared with the rest of the items), 2=somewhat important, 3=moderately important, 4=very important, and 5=extremely important.

Data Analysis

All data entry, statistical analyses, and map production were accomplished using the Concept System® computer program[2]. The data from the sorting task were aggregated according to procedures described in Weller and Romney (1988) and Trochim (1989a). The resulting total similarity matrix was analyzed using nonmetric multidimensional scaling (MDS) analysis with a two-dimensional solution (Kruskal & Wish, 1978). The two-dimensional MDS configuration became the input for hierarchical cluster analyses utilizing Ward's algorithm (Everitt, 1980). Analysis results of 10-20 clusters were examined following the procedure described in Trochim (1989a) and led to selection of a 15-cluster final solution. The cluster labels that appear in the map were supplied initially by the computer program, then modified by the authors according to criteria developed by Trochim (1989a).

Figure 1
Cluster Rating Map



The rating data were averaged across persons for each item and each cluster in the 15-cluster solution. This rating information was depicted graphically in a cluster rating map, which showed the 15 clusters with average ratings as a third dimension. Figure 1 displays the cluster rating map.

Each cluster bears a label indicating the major focus of the cluster. The computer program supplies a label for each cluster, but in cases where the label does not seem adequately descriptive of the cluster, the analyst chooses one. In this study, the authors used a mixture of computer-generated labels, and their own.

Results

Various reports can be produced by the CM program. One is a "point map," which displays each numbered item in two-dimensional space. The point map forms the basis for the "Items by Cluster" report, which groups closely-related items in clusters. Table 2 lists the items for each cluster in the 15-cluster map, the label for each cluster, the average rating for each item in the cluster, and the average rating for the cluster.

Table 2

Listening Items by Cluster, with Average Importance Ratings

Clusters	Ratings
Cluster 1: active listening	
1) active	4.32
2) affective processes	3.53
3) alertness	4.11
5) appreciation	3.21
20) conclusions	3.32
32) echoic memory	2.79
33) effort	4.00
6l) motivation	4.05
68) purposeful activity	3.89
74) responding	3.58
91) sustaining	2.84
98) voluntary	3.56
Average Rating:	**3.60**
Cluster 2: subception	
12) bias	3.79
24) covert response	3.05

(Table 2, continued)

Clusters	Ratings
34) emotional state	4.26
89) subception	2.21
90) subliminal	2.68
94) unconscious	3.53
96) values	3.53
Average Rating:	**3.29**
Cluster 3: overt response	
25) credibility	3.42
51) interpersonal	3.47
64) overt response	3.26
92) target	2.58
Average Rating:	**3.18**
Cluster 4: empathy	
35) empathy	4.26
52) intrapersonal	3.53
67) phenomenology	2.58
93) therapeutic listening	3.47
Average Rating:	**3.46**
Cluster 5: organization	
4) analysis	3.63
16) comparisons	3.11
47) information processing	4.00
72) recoding	3.47
73) reorganizing	3.26
77) searching	2.84
79) selective process	3.42
84) sorting	3.16
Average Rating:	**3.36**
Cluster 6: interpretation	
15) cognition	3.84
46) inferences	3.95
49) integration of experiences	3.68
50) intellectualizing	2.47
53) interpretation	4.00
82) sequencing	2.89
95) understanding	4.32
Average Rating:	**3.59**

(Table 2, continued)

Clusters	Ratings
Cluster 7: composite process	
6) association	3.42
17) composite process	3.32
28) decoding	4.05
58) mental activity	3.95
70) recall	3.95
76) retrieving information	3.47
88) storing information	3.37
Average Rating:	**3.65**
Cluster 8: critical listening	
19) concentration	4.47
21) conscious	4.05
26) critical listening	4.21
30) discrimination	3.68
36) evaluation	3.63
42) gathering information	3.37
57) meaning	3.95
63) organization	3.53
Average Rating:	**3.86**
Cluster 9: information storage	
41) following directions	3.26
55) long-term memory	3.47
75) retention	3.89
83) short-term memory	3.47
Average Rating:	**3.53**
Cluster 10: sensory impression	
7) attention	4.68
10) auditory processing	3.42
45) images	3.32
65) patterns	3.00
66) perception	4.21
71) receiving	4.42
81) sensory impressions	3.26
Average Rating:	**3.76**
Cluster 11: auditory processing	
8) auditory acuity	3.16
9) auditory fatigue	3.16

(Table 2, continued)

Clusters	Ratings
11) aural assimilation	3.05
31) distraction	3.11
44) hearing	4.21
78) seeing	2.37
80) sense receptors	3.63
Average Rating:	**3.24**
Cluster 12: input characteristics	
13) binaural	2.26
14) channel	2.58
18) compressed (rate-controlled) speech	2.42
48) inputs	3.37
60) monaural	2.21
85) sound waves	3.05
87) spoken language	3.21
Average Rating:	**2.73**
Cluster 13: context	
22) constructs	3.32
23) context	4.00
37) experiences (previous)	3.79
39) feedback	3.74
40) filters	3.42
Average Rating:	**3.65**
Cluster 14: Cues	
27) cues	3.63
54) intonation patterns	3.00
56) masking	2.63
59) message	3.47
69) rate	2.89
97) verbal stimuli	3.68
Average Rating:	**3.22**
Cluster 15: Nonverbal stimuli	
29) delivery	2.84
38) facial expressions	3.26
43) gestures	2.95
62) nonverbal stimuli	3.58
86) speaker	3.00
Average Rating:	**3.13**

Interpreting the Cluster Rating Map

Two general kinds of inferences can be drawn from inspection of the cluster map in Figure 1: (1) the nature of each cluster in light of its component items, and (2) the importance of each cluster to the construct of listening.

(1) Nature of the clusters. On the cluster rating map (Figure 1) each cluster takes its shape from the configuration of the relationships of its component items to each other on the point map. The larger the area of a cluster, the more items it contains that were not sorted together; the smaller the area, the more that the participants judged the items to be closely related.

For example, clusters 5, 6, 7, 8, and 9, labeled organization, interpretation, composite process, critical listening, and information storage respectively, contain 34 items that occurred close together in one quadrant of the point map, indicating that most participants deemed them to be closely related. In contrast, items in the clusters labeled overt response and nonverbal stimuli are in the opposite quadrant, indicating that they have the lowest relationship to the previous five clusters.

(2) Importance of each cluster to the construct of listening. Importance is indicated by the number of layers shown for each cluster (Figure 1). Ratings of importance are independent of the size or shape of the cluster. The layers range from one to five. The larger the number of layers, the more important the cluster. In the lower left of Figure 1 is a display of the importance values of the clusters. A cluster having only one layer, such as input characteristics, contains items that averaged from 2.73 to 2.96 on the importance scale. But critical listening shows 5 layers, indicating average importance ratings across participants of from 3.64 to 3.86 for the component items. The average rating for this cluster, 3.86, was the highest of any cluster.

Cluster 1, active listening, which contains 12 items, is both the largest cluster and one of the most important. If the term echoic memory is removed from the list (because it was apparently misunderstood by most of the participants—see Critique of Item Selection below), active listening ties with sensory impressions as the second most important cluster of variables.

Examination of Figure 1, the 15-cluster map, indicates that the four clusters deemed most important as contributing to the definition of listening were critical listening, sensory impressions, context, and composite process, with average ratings of 3.86, 3.76, 3.65, and 3.65, respectively. Active listening, which contained 12 items (the largest of any cluster), with a rating of 3.60, was the fifth highest in importance.

The least important clusters were nonverbal stimuli (3.13) and input characteristics (2.73).

Analysis of Results

The results of this study bear comparison with two other sources of information on listening constructs: the Glenn (1989) study, and the ILA (1994) definition of listening. Table 3 compares the clusters of the CM study with the Glenn and ILA sources.

Table 3

Comparison of CM Categories with Glenn and ILA Definitions

CM Categories	Glenn	ILA Definitions
1. Active listening	[In "attention"]	Active
2. Subception	- - -	- - -
3. Overt response	Response	Responding
4. Empathy	- - -	Empathically
5. Organization	- - -	- - -
6. Interpretation	Interpretation	- - -
7. Composite process	- - -	- - -
8. Critical listening	[In "response"]	- - -
9. Information storage	Remembering	Retain information
10. Sensory impressions	- - -	- - -
11. Auditory processing	- - -	- - -
12. Input characteristics	Spoken words	Spoken messages
13. Context	- - -	- - -
14. Cues	- - -	- - -
15. Nonverbal stimuli	Visual cues	Nonverbal messages

Comparison with the Glenn (1989) study

As noted earlier, many of the items chosen for the present study were derived from Glenn's content analysis of the key words in 50 definitions of listening. She lists the following seven concepts and their synonyms:

1. perception—reception, hearing, sensing, detecting
2. attention—concentration, conscious effort, purposeful, selective, voluntary, active
3. interpretation—understand, comprehend, assign meaning, identify, recognize, analyze, assimilate, make sense
4. remembering—retention, recall
5. response—react, act upon, evaluate, draw conclusions, further activity or course of action

6. spoken sounds—oral language
7. visual cues—face-to-face, nonverbal (Glenn, 1989, p. 25)

Since all seven concepts and most of the synonyms from the Glenn study were incorporated in the present study, the concepts appear in some form in the CM clusters, but not always as cluster labels. The concepts attention and perception occur as items #7 and #66 in Cluster 10, sensory impressions. Interpretation is the same as C6; remembering is the same as C9 (information storage), with its sub-items of long-term memory, short-term memory, and retention. For the most part, the rest of the clusters in the present study contain variables that do not appear in the Glenn study.

Comparison with the ILA Working Definition

The nine key concepts in the working definition of listening most recently proposed by ILA (Emmert, 1994), are active, receiving, constructing meaning, responding, spoken messages, nonverbal messages, retain information, empathically, and appreciatively. Comparing these terms with the labels for the 15 clusters in Figure 2, we find C1, active listening; C3, overt response; C4, empathy; C6, interpretation (which could include constructing meaning); C9, information storage; and C15, nonverbal stimuli. The term receiving in the ILA definition is equivalent to item 71 in C10; and the term appreciation occurs in our study as one element in the Cluster 1, active listening. As with CM and the Glenn study, only general comparisons can be made between the CM solution and the ILA definition.

Critique of Item Selection

The CM solution can be no more valid than the set of 98 items that were chosen for sorting and rating. Any appraisal of the present study should include a close examination of the 98-item list to determine whether important variables were omitted, and whether some items should be eliminated. Other important criteria are whether each item is clear in its present form, and whether the best form was chosen.

One of our concerns was to select the appropriate form of each entry on the list, where two or more were available. For example, consider the following sets of terms:

- attention, attending, attentive
- discrimination, discriminating, discriminative
- empathy, empathizing, empathetic/empathic
- evaluation, evaluating, evaluative

Although superficially the three terms in each set have similar meanings, there are subtle distinctions which might affect the way that participants cluster the items. The first word in each set, the noun, names a concept or construct; the second word, the gerund, denotes a process, and the third word, the adjective, describes a behavior or attribute of an effective listener. It would have been interesting to see how participants might have clustered the items if we had been able to use all three forms; but that would have made the list unmanageable, unless many items were eliminated, since the total number had to be 98 or fewer. We settled on using the first word in each set.

At least one term was apparently unfamiliar to many of the participants. That was item 32, echoic memory, defined as a transient sensory memory register where the auditory input can be stored briefly for further processing (Rumelhart, 1977; the definition was not made available to the participants in the study). Echoic memory, then, is a very brief, unconscious occurrence. Surprisingly, this term was clustered most often with the terms conclusions and effort, which clearly makes little sense, since echoic memory is a perceptual process not under the control of the listener, and both conclusions and effort connote active processing by the listener. Logically, it should have clustered with C9, information storage, rather than with C1, active listening. If item 32 were removed from the list, the average importance rating for C1, active listening, would be 3.67, making it the third most important of the clusters.

Another term that may have been unfamiliar to some participants was subception, a hypothetical construct related to the perception of auditory stimuli delivered below the threshold of hearing of the listener (Clark, 1990). Clark reports conflicting evidence as to whether the construct actually exists. The term did, however, cluster logically with similar terms, as can be seen from the items in Cluster 2 in Table 2.

One factor that may have affected participants' interpretation of the individual items was the fact that each consisted of only one or two words, rather than being embedded in longer phrases or sentences. We chose this form because in the standard CM procedure, in which statements are generated during a group process, the participants are instructed to keep the statements short and to include only one idea per statement. It is possible that there might have been other configurations of clusters if some of the items had been more explicitly elaborated.

Discussion - Toward a Construct of Listening

So many terms have been used to describe concepts and processes of listening that it has been difficult for researchers to bring some order

to the material, and to make it inclusive but not overwhelming. The CM method is one way to achieve consensus on the relation of these terms to each other. This study has demonstrated the feasibility of using the CM methodology to achieve such consensus. The results should be considered exploratory only. It is possible that if the terms were sorted and rated by a different group of participants, the results would be somewhat different.

The 15-cluster concept map awaits evaluation by scholars and teachers of listening before we can say what contribution the findings might make to a theoretical construct of listening. The four clusters which garnered the highest ratings of importance were critical listening, sensory impressions, context, and composite process. If the term echoic memory is eliminated, the active listening cluster would be added to the list, rating the third highest in importance. Whether all 15 clusters should be included in a listening construct, or only the five rated most important, is a decision that merits further study.

Directions for Further Research

We recommend that the study be replicated, with three purposes in mind:

1) To verify the validity of the list of items by submitting them, along with other terms found in the literature but not included in this study, to a group of scholars with expertise in the field of listening. Were the items in the present study the most central to any definition of a listening construct? Should others have been substituted? Should some of the items be presented in a longer form?

2) Have two different groups do the sorting and rating tasks—one group with a background in speech communication but no special expertise in listening, and the other composed of participants who regularly teach and/or conduct research in listening. The CM program can match patterns among different groups of participants, and such a comparison might yield more definitive information.

3) Use a deductive approach to deconstructing the clusters in the 15-cluster map. The present clusters were arrived at inductively, through an unstructured sorting procedure. In a deductive approach, experts in listening would examine the labels for the clusters and list terms that they think best apply to each cluster.

Summary and Conclusions

This study used the Concept Mapping procedure to arrive at a consensus about variables associated with listening that could serve

as a basis for developing a sound theoretical construct. A set of 98 items related to various aspects of the listening process was presented to 19 participants, who used an unstructured sorting procedure to indicate which items were most closely related, and a 5-point rating scale to indicate their relative importance to the construct of listening. The subsequent analysis used multidimensional scaling and hierarchical cluster analysis to produce visual maps showing the relationships of the items to each other.

The best solution was one of 15 clusters, which were labeled and depicted on a map that showed the relative importance of the clusters and their distance from or proximity to each other. The most important clusters were critical listening, sensory impressions, context, and composite process. The largest cluster, active listening, contained 12 items, most of which were rated as being very or extremely important.

The study was an exploratory one, and several problems were noted. We recommend that the study be replicated in various ways, and that communication scholars engage in discourse about what contributions the findings from the study can make to the development of a definition of listening, and to a theoretical construct.

What are the implications of the CM approach for a theory of listening? It is our view that the methodology holds promise for contributing to the effort to specify the parameters of listening, and for developing a theoretical perspective to undergird further research and furnish criteria for new assessment instruments.

Notes

1. We have been unable to verify the date of the ILA meeting at which the list of terms was discussed. (Personal [e-mail] communications, Belle Ruth Witkin with Andrew Wolvin and Carolyn Coakley, April 1997.)

2. The Concept System© computer software is available for IBM-PC and compatible computers running Windows© 3.1 or later. The program is a complete user-friendly package for implementing the concept mapping process. It is used to enter brainstormed statements, print them for sorting and rating, enter sorting and rating data, conduct the statistical analysis (including multidimensional scaling and hierarchical cluster analysis), and display a wide variety of map results. The user can interact directly with the program when creating and examining maps. Information about the software may be obtained by

writing to Concept Systems, Inc., 118 Prospect St., Suite 309, Ithaca, NY 14850; or by phone, (607) 272-1206, or FAX, (607) 272-1215.

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