Considerations for Collecting Freelists in the Field: Examples from Ethobotany

MARSHA QUINLAN
Washington State University

In freelists, informants create an inventory of all the items they know within a given category. Freelists reveal cultural salience and variation in individuals' topical knowledge. The ease and accuracy of freelist interviewing makes it ideal for collecting data on local knowledge from relatively large samples. This method, however, does not work well with broad topical areas: People tend to omit some items and cluster responses as they unpack mental subcategories. Successive freelisting can reduce and redefine topics (domains), thus focusing the content of interviews. In oral freelists, interviewers should prevent bystanders from contaminating the informant's list, and written freelists are advisable in literate communities. Responses from freelists should be cross-checked with informal methods as much as practicable, as in this Caribbean case. With proper attention to detail, freelisting can amass high-quality ethnobotanical data.

Keywords: *elicitation; ethnobotany; ethnopharmacology; freelist; free recall*

Freelists can identify the items in an emic category, or cultural domain, and can amass focused data quickly and easily. A freelist interview simply entails listing things in a domain (e.g., "kinds of wood for building" or "ways to prepare potatoes") in whatever order they come to mind. The resulting lists tap into local knowledge and its variation in a study community. Hence, the method is well suited for ethnobotanical research and has been used in many studies of medicinal plants (e.g., Trotter 1981; Crandon-Malamud 1991; Hatfield 1994; E. A. Berlin and Berlin 1996; Nolan and Robbins 1999; Ryan, Nolan, and Yoder 2000; Nolan 2001, 2004; Finerman and Sackett 2003; Quinlan 2004).

Freelisting is a well-established ethnographic method that rests on three assumptions (e.g., Romney and D'Andrade 1964; Henley 1969; Bolton,

Rob Quinlan and three anonymous reviewers much improved the readability and utility of this article. Lilia' Margillia and Indira Durand, Avie Constant, and Kathryn Phelan helped me collect freelists in Dominica. Thank you all. I also thank all the Dominican people who taught me bush medicine and the Ball State University students who freelisted birds.

Field Methods, Vol. 17, No. 3, August 2005 219–234
DOI: 10.1177/1525822X05277460

Curtis, and Thomas 1980). First, when people freelist, they tend to list terms in order of familiarity. When listing kinship terms, for example, people generally list mother before aunt and aunt before great-aunt (Romney and D'Andrade 1964). Second, individuals who know a lot about a subject list more terms than do people who know less. For instance, people who can look at an unlabeled map and correctly name many countries also make long freelists of country names (Brewer 1995). And third, terms that most respondents mention indicate locally prominent items: people in Pennsylvania list apple and birch trees more frequently and earlier than they do orange or palm trees (Gatewood 1983).

Freelisting is similar to open-ended surveying, and, in principle, there is a distinction between the two: Freelists inquire about cultural domains, while open-ended questions ask for information about the informant (Borgatti 1999). For example, asking someone to list "medicines *you* use," is an open-ended survey, while freelists ask for "medicines *people here* use." In practice, the distinction between freelisting and open-ended surveying may be inconsequential because individuals often answer both open-ended surveys and freelists from a personal perspective.

I conducted about one thousand oral freelists in Dominica, West Indies. Typically, people responded as though I had asked about a personal attribute, although I asked about a general cultural one. That is, instead of responding, "People here use . . . ," they replied in the first-person singular or plural (e.g., "I'm using . . ." or "We're using . . . "). If the egocentric perspective is normal in freelists, it would explain why, in freelists of kin terms, Romney and D'Andrade's (1964) high school informants (who presumably had parents but probably not offspring) listed mother and father much more than son or daughter and, while several listed grandparental terms, very few listed grandchildren terms. Experience leads me to conclude that individuals' freelists are largely personal or egocentric, although a controlled experiment is needed. In sum, the difference between freelisting and open-ended surveys may be insignificant for many research questions. However, absent controlled experiments, each researcher must decide whether a tendency to respond personally is an important concern.

Drawing on my ethnobotanical research in rural Dominica, I describe the advantages and obstacles of using freelists. Freelist interviews allowed me to (1) find culturally important illnesses, (2) identify local herbal treatments for those illnesses, and (3) explore sociodemographic variables associated with knowledge of herbal treatments. Specifically, I discuss five issues for efficient use of freelists in the field: (1) whether to conduct freelist interviews, (2) whether to collect oral or written lists, (3) focusing the domain of each

freelist interview, (4) types of freelist analysis, and (5) cross-checking freelists with ethnographic interviewing.

TO FREELIST OR NOT

Freelists provide inventories and boundaries of cultural domains. In ethnobotany, if one wants to find the most culturally salient plants of a particular sort (medicinal, agricultural, etc.) or ways to use particular plants, the freelist method is ideal. Freelisted data allow the researcher to discover the relative salience of items across all respondents within a given domain. Salience is a statistic accounting for rank and frequency (e.g., in the domain of English color terms, "red" is more salient—it appears more often and earlier in freelists—than "maroon"; Smith et al. 1995). Researchers can calculate the mean salience value for all listed items to reveal the intracultural salience of each term (below). Ethnobotanists can also compare individuals' lists to assess who in a community knows more (or less) about a certain domain of plant knowledge.

A potential shortcoming of freelisting is that inventories may not be as exhaustive as inventories gained through other methods. Key informant interviews with local plant experts, including field interviews (i.e., walking through vegetation zones or plots with informants and noting every useful plant found; Alexiades 1996:65-66), are the norm in ethnobotany. Long interviews with key informants may offer informants visual cues and allow or encourage informants to remember more obscure species. Conducting several long interviews may generate more exhaustive inventories than freelists. The specificity of domains can limit freelists. For example, my freelists on illnesses that Dominicans cure with bush medicine did not yield the multiple gynecological conditions for which Dominicans use bush (herbal) medicine: Dominicans regard childbirth, menstruation, and so forth as normal events for healthy women, not illnesses requiring a cure. Another factor limiting freelists is that they reflect only terms in a respondent's active vocabulary (or lexical command). Informants are able to recognize more items in a domain than they can freelist from memory (Hutchinson 1983). Researchers can, however, maximize freelist output through supplementary prompting (see Brewer 2002).

There are several advantages to freelisting that, in most cases, outweigh the possibility of reduced inventory. First, freelists, unlike less-structured interviews, are rapid and simple. They allow for much larger samples in less time. Other rapid interview methods require the researcher to have prior

expertise in the domain. Recognition tasks, questionnaires, and sorting and ranking interviews, for example, have predetermined responses built into the instrument (see Bernard 1994). Second, unlike data from less structured interviewing, freelists are quantifiable. As Handwerker and Borgatti (1998:549) argued, "even simple forms of numerical reasoning add important components to ethnographic research. . . . Reasoning with numbers reveals things you'd otherwise miss." Focused freelists gather every significant or salient item (or species) that the population associates with a domain, and freelist data allows one to find areas of consensus or high modality within the community (Boster 1987; D'Andrade 1987; Weller 1987). In addition, an informant's list length is a measure of that person's depth of knowledge or familiarity within a domain (Gatewood 1983, 1984; Borgatti 1990; Brewer 1995; Furlow 2003). Thus, a researcher can use freelists to identify community experts or examine intracultural variation (Quinlan 2000). One can examine freelists' content comparatively. In rural Missouri, novices in wild plant use, for example, listed highly recognizable, ecologically salient species such as blackberry and sunflower, while experts listed greater proportions of plain, herbaceous species native to the region, such as burdock and plantain (Nolan 2002).

USING WRITTEN OR ORAL INTERVIEWS

In fully literate communities in which the terms sought (e.g., plant names) are in a written language, researchers can provide freelist interview schedules for informants to fill in themselves. Interview sheets simply contain a prompt written above a series of blanks. When interviewees have their own pages to write on, they can work alone, at their own pace. This method works well with most U.S. populations.

Freelist interviews can also be oral. For example, I collected oral freelists in Dominica. Rural Dominicans vary in literacy. Most bush medicines are in French Patois, a largely unwritten Creole language, in which residents struggle (more than they do in English) to spell (sound out) words. Collecting oral freelists did complicate the freelist procedure, however, because making oral lists is less formal and less independent than completing a written list. While informally listing plants, subjects sometimes called out for help from nearby friends or family who (trying to help) shared various remedies. Every so often, somebody saw another villager doing an interview, approached out of curiosity, and offered suggestions. These occasions were difficult because the freelists should contain the items that one individual knows in the order that they come to mind for that individual.

Research assistants and I dealt with shared-answer events in several ways according to the situation. For example, one woman I interviewed had listed two cures for the common cold when the name of a third slipped her mind. Her aunt was about thirty feet away, and the woman called out, "Auntie! What that bush we using for the cold, na?" "*Timayok*!," the aunt screamed back. The woman had already listed timayok. "No, the other one!" The aunt yelled, "Hibiscus flower." "Yes, but there's another one again," the woman said to the aunt. The freelister turned to me and said, "Hibiscus flower is good too, you know. We using that plenty for colds." "*Pachurí*?" the aunt called. "THAT is it! *Pachurí*," the woman said to the aunt and me. In this case, I continued with the woman's freelist, leaving a blank space in the third position, writing hibiscus in the fourth position, then, filling *pachurí* in the third position because that was the one the woman was thinking of when she involved the aunt. In some cases, we abandoned the freelists for a later time, as it was less than clear in what order the interviewee would have thought of the herb, had he or she not been prompted. Leaving an interview because of compromised data was discouraging, and consultants were sometimes miffed when I or another interviewer returned to try again.

We learned to avoid most compromised freelist situations by explaining the project to all the nearby adults and isolating the informant somewhat by stepping around a corner. Had villagers been writing their own responses, rather than listing them aloud, they still may have called out for memory help or received suggestions from curious bystanders, but probably less often. Written exercises are inherently more private.

FOCUSING THE DOMAIN

Freelists are an advisable method for accumulating inventories. Yet they may not yield a total knowledge. Interviewees commonly forget to list items in a domain or (for expediency) intentionally omit items they know (Brewer 2002). Omissions are, in my experience, most likely if the freelist prompt is broad. Freelist data are ranked so that the order in which people list items reveals psychological or cultural preeminence of items given a certain prompt. The more focused the prompt, the more complete the freelist will be for that subject, whereas vague, general prompts result in broad, scattered lists of questionable utility.[1]

Freelists must deal with a single mental category, called a semantic domain (Weller and Romney 1988; Bernard 1994). If the prompted domain is broad, the inventory in the freelist often consists of clusters of subdomains (mental categories). In an experiment, I asked Ball State University students

to complete two freelists on birds. In the first, they were asked to name "all the birds you can think of." In the second, done some time later, they named "backyard birds in Indiana." Afterward, one informant stated that robins were one of the first birds she learned to name as a child. Indeed, in her freelist of backyard birds, robins were highly ranked, third in a list of sixteen. In her freelist of all birds, however, robins appeared near the list's end. Robins emerged as an afterthought. Before this informant listed robin, she listed a series of pet birds (one mental domain for her); followed by a series of colorful, exotic birds such as macaws and toucans; then, some raptors; some poultry birds; and finally, common local wild birds, including robins. This clustering was typical in the students' lists.

In Dominica, open-ended pilot surveys (e.g., Borgatti 1999), in which I asked consultants to list "all the *bush medicines* [herbal remedies] you use," were similarly too broad. Lists contained clusters of subdomains, usually grouped into treatments for particular ailments, although sometimes grouped by the individuals that grew/used the plant, plant size/shape, and so forth. Furthermore, many species—later identified as leading treatments for common illnesses—were missing from these broad lists, presumably because the treatment's subdomain (a particular illness) did not occur to the informant during the interview. Similarly, Saraguro (Ecuadorian Andean) freelisters did not recall several plants in their own home gardens, omitting scarcer ones (usual in freelists) and also plants that were possibly "too ubiquitous to consider 'interesting'" (Finerman and Sackett 2003:462).

To make freelists most efficient and accurate, it is helpful (for researchers and consultants alike) to narrow the freelist's domain. It is easier, for example, for someone to list the weeds that grow in her or his yard than the weeds in her or his village and easier still to list the weeds in her or his home garden. Asking someone to list sore-throat medicines that he or she knows is less daunting and less bother than listing every medicine he or she knows. Researchers should identify relevant, focused domains and then conduct freelists on the content of each domain. The researcher thus runs several short, noninvasive interviews, which, when combined, may be more complete than one broad interview.

In cases in which essential categories are not apparent, one might focus domains using either successive freelisting or ethnographic interviews (see below). Successive freelisting is an accurate, efficient method of honing domains. Here, a researcher uses the responses from one freelist as topics for subsequent freelist interviews, yielding related lists of subdomains. Ryan, Yoder, and Nolan (2000) offered a detailed description of collection and analysis using this technique. I provide one ethnobotanical example.

After conducting the aforementioned unsatisfactory pilot interviews on all bush medicines, I conducted a series of freelists focusing on illnesses Dominicans know how to treat with medicinal plants. I used a prompt in the local English Creole (developed with key informants to aid comprehension), "Here in Bwa Mawego [the village], what things they curing with bush medicine?" I collected freelists from a quota sample of thirty adult villagers stratified by age, sex, and village location (see Quinlan 2004), or approximately one-fourth of resident adults. These freelists were oral, and I wrote informants' responses as they listed the illnesses. Each freelist of illnesses took between two and ten minutes.

I compiled these data (using the calculations outlined below) and ascertained the most salient treatable illnesses. In theory, twenty-one illnesses were highly salient, but focus groups found redundant salient terms. The final list contained eighteen prominent illness domains.

My ultimate objective was to find rural Dominicans' customary (or prevalent) medicinal plants. Research assistants and I asked every available adult in the village to freelist bush remedies for each of the eighteen illness domains. For most people, each freelist of a domain took much less than one minute. We could usually do all eighteen freelists in one sitting with each villager. When we surveyed the whole village with the eighteen short freelists, we reinterviewed the individuals who participated in the long pilot interviews (in which they named all bush medicines).

When I summed the separate medicinal species that the former consultants mentioned in the domain-focused exercise, they all had mentioned more species in multiple short freelists than they had in their initial long open-ended survey. Few informants became bored, frustrated, or overwhelmed during the domain-focused freelists because each of the eighteen tasks was simple, quick, and different. Numerous people enjoyed their freelisting tasks and returned to the interviewers with their kin and friends who wanted a turn at it. Together, the interviewers obtained 1,826 freelists from 126 adults (almost all present in the village), yielding 7,235 total responses.

FREELIST ANALYSIS

Freelist data reveal information about the items people list and the people who list them. The data inherently demonstrate a kind of cultural agreement (Weller and Romney 1988; Furlow 2003). Frequently mentioned items (or species) among individuals indicate common knowledge, or consensus,

TABLE 1
Weighting Salience of Items (Illnesses) for Free Lister 1

Illness	*Inverted Rank/Total Listed*	*Salience (S)*
Vomiting	5/5	1
Pressure	4/5	0.8
Sore throat	3/5	0.6
Something "hurts" you	2/5	0.4
Sprains	1/5	0.2

NOTE: For the sake of illustration, this freelist, and all lists in Tables 1 through 3, are abbreviated, as all participants listed more than ten illnesses.

within the culture. And the differences in list length and content are measures of intracultural variation.

Salience analysis (or Smith's S; see Smith 1993) accounts for frequency of mention; however, it is weighted for list position as well. Thus, with my freelists of illnesses people treated with bush medicine, the calculation showed salience estimates for each illness, indicating both the number of people who mentioned the illness and the order of their responses. The salience statistic is simple enough to calculate quickly by hand. There are two steps. First, find the salience of listed items (S) for each individual. Here, you rank items on an individual's list inversely (final item listed equals one, and items increase by one moving up the list). Then you divide the rank by the number of items the individual listed (see Table 1). Second, tabulate a composite salience value (or mean salience value) for each item listed in all freelists of the domain. Here, you sum all salience scores for that item and then divide by the number of informants (see Table 2). ANTHROPAC 4.0 software (Borgatti 1992) simplifies the entry and salience analysis of freelist data, which is particularly useful with large samples.

Determining which items are salient is not standardized. Drawing this boundary is a matter of judgment. In my experience, there are often visible breaks in the data that make good margins. The first break in salience occurs between items that many people think of and those that only some recall. In Figure 1 of freelists of Dominican treatments for boils (Quinlan 2000), many people listed *malestomak*, *planté*, and soft candle (dripped tallow candle wax): These were highly salient. Some people listed the subsequent four treatments (*basilík* through *babadin*), which are somewhat salient and worth inclusion under most circumstances, depending on the researcher's objectives. Pepper leaf, *aloz*, and tomato leaf are not very salient, but because they were listed by three or four individuals, they likely are local boil treatments,

TABLE 2
Determining Composite Salience for Three Freelisters

	Freelister				*Composite Salience*
Illness	*1*	*2*	*3*	*Illness* Σ	Σ/n *(n = 3)*
Worms		1	1	2.000	0.667
Pressure	0.8	0.571	0.625	1.996	0.665
Buttons		0.865	0.75	1.615	0.538
Vomiting	1	0.428		1.428	0.476
Cold		0.857	0.5	1.357	0.452
Inflammation			0.875	0.875	0.292
Sore throat	0.6		0.25	0.850	0.283
Cough		0.286	0.35	0.636	0.212
Something "hurts" you	0.4			0.400	0.133
Sprains	0.2			0.200	0.067
Asthma		0.143		0.143	0.048
Cuts			0.125	0.125	0.042

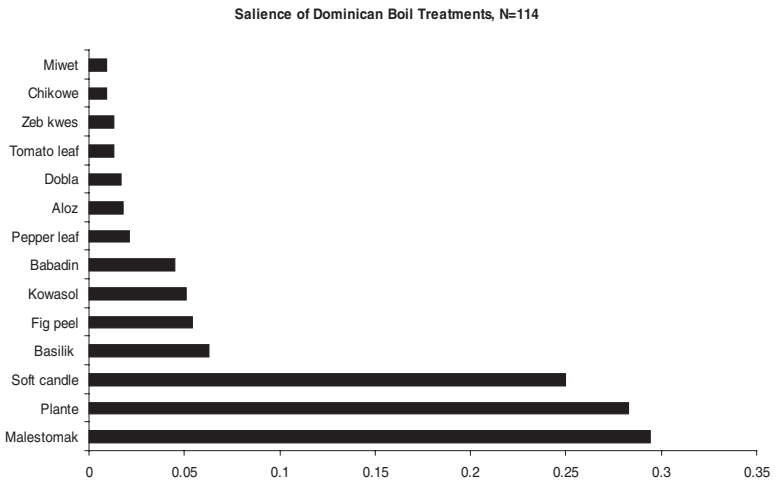
NOTE: Column 2 contains S of freelister 1 (Table 1): Responses of two other individuals (freelisters 2 and 3) and their respective S are in columns 3 and 4. For each item, sum individuals' salience scores and divide by the sample size.

and though less salient, they might be retained in inclusive considerations. The straggling items (*zeb kwes* through *miwet*) are either uncommon or a mistake, as with the informant who freelisted turnip as a fruit for Weller and Romney (1988). *Dobla*, though listed by only two individuals like the three least salient items, has higher salience, meaning that it ranked relatively high among the individuals who listed it. I would not consider it salient, but it is worthy of further investigation.

Robbins and Nolan (1997) and Ryan, Nolan, and Yoder (2000) offered additional techniques to examine clustering of freelist data, such that one might use freelists to examine cognitive arrangement of emic or etic categories within a domain. An ethnobotanist might, for example, examine the psychological/cultural salience of plants with perceived humoral qualities, or weeds versus cultivates, or flowering versus nonflowering plants.

In addition to revealing culturally salient items across individuals, freelists measure individuals' expertise within a domain. As mentioned above, knowledgeable people tend to have longer lists. By creating an individual-by-item matrix, one can tabulate items' frequency of mention (Table 3, row totals) and individuals' list lengths (Table 3, column totals). With additional sociodemographic data, one can investigate relationships between people's knowledge in a domain and other characteristics such as residence

FIGURE 1
Dominican Remedies for Boils



	Mal	Plan	Soft	Basilik	Fig	Kawa	Baba	Pepp	Aloz	Dobla	Tomat	Zeb K	Chik	Miwe
Salience	0.294	0.283	0.25	0.063	0.054	0.051	0.045	0.021	0.018	0.017	0.013	0.013	0.009	0.009
Frequency	39	37	29	9	8	8	8	4	4	2	3	2	2	2

NOTE: Treatments, mostly given in French Patois, are the following: *Malestomak* (*Lepianthes peltata* [L.] Rafinesque), *planté* (*Plantago major* L.), "soft" (tallow) candle wax, *basilik* (*Ocimum basilicum* L.), "fig" (banana) peel (*Musa acuminata* Colla), *kowasol* (*Annona muricata* L.) *babadín* (*Passiflora quadrangularis* L.), pepper leaf (*Capsicum chinense* Jacquin), *aloz* (*Aloe barbadensis* Miller), *dobla* (*Chaptalia nutans* [L.] Polak), tomato leaf (*Lycopersicum esculentum* Mill.), *zeb kwes* (*Peperomia pellucida* [L.] Kunth), *chicowe* (unidentified), *miwet* (*Cestrum megalophyllum* Dunal).

or education level. I found, for example, that Dominicans' mean list length of bush medicines positively correlates with age and wealth (Quinlan 2000).

CHECKING FREELISTS WITH ETHNOGRAPHIC INTERVIEWS

The value of the freelisting technique depends on understanding the cultural domains in question. Informal interviews (key informants, focus groups, etc.) in conjunction with freelists permit ethnographic cross-checking,

TABLE 3
Comparing Individuals' Knowledge

	Freelister			
Illness	*1*	*2*	*3*	*Frequency*
Worms	0	1	1	2
Pressure	1	1	1	3
Buttons	0	1	1	2
Vomiting	1	1	0	2
Cold	0	1	1	2
Inflammation	0	0	1	1
Sore throat	1	0	1	2
Cough	0	1	1	2
Something "hurts" you	1	0	0	1
Sprains	1	0	0	1
Asthma	0	1	0	1
Cuts	0	0	1	1
Total illnesses listed	5	7	8	20

NOTE: Salience data from Table 2 converted to ones and zeros for illnesses' presence or absence on three informants' freelists (1/0 indicate probable presence/absence of knowledge bush medicine for that illness).

which increases accuracy and enhances the depth of ethnographic understanding. Informal ethnography and freelisting can be complementary sources of information.

The ideal way to find emic domains is to use successive freelisting cross-checked with ethnographic interviews. I recommend getting freelists from a larger sample, then using the salient subdomains of the original as focus group topics. In focus group interviews (Bernard 1994), several local consultants hash out the different categories of X (e.g., plants in the forest, plants one sells, etc.) that have been freelisted. Observing focus groups lets an ethnographer witness locals' decision-making rationales and processes (Trotter and Schensul 1998).[2] Initial time spent going through both freelisting and informal interviewing is worthwhile because it expedites the final set of interviews.

Researchers can use ethnographic interviews to accurately standardize freelists. Weller and Romney (1988) warned in *Systematic Data Collection* that when freelists consist of phrases or statements, various lists may contain different phrasings of the same concept. A researcher must then use judgment to standardize concepts before tabulating the lists. In unclear cases, it is "desirable" for informants to identify different phrases that represent a single concept (Weller and Romney 1988:15). Similarly, freelists of terms, such as

plant names, often contain synonyms for the researcher to cull out. Different terms in a freelist may not be separate entities. Furthermore, one emic term may refer to more than one etic entity. Some usual ethnobotanical examples illustrate these points below.

My first succession of freelists yielded twenty-one highly salient illness domains. Focus groups responded to the probe terms and indicated that several of them were redundant. In their estimation, cuts and sores, though different, belonged together, as did "prickle-heat" and "buttons" (rashes, pox, and pimples) and upset stomach and vomiting. After much debate, they agreed that the less salient term "arthritis" did not belong with "rheumatism" (arthritis is associated with a culture-specific fright illness in Dominica, while rheumatism is not). Here, using focus groups streamlined my interviewing process and lent emic authority to the final domains. Without input from the focus groups, I would have performed several superfluous interviews with each subject. Or, if I had deleted redundancies on my own, I would have, despite extensive experience with the local medical system, grouped domains differently.

Final freelists in a succession also contain synonyms and require standardization. Ethnobotanists work with lay people (not botanists) who generally use local common names for plants. Unfortunately, plants' common names are often not exact (thus the necessity of Latin species names). Plants often have multiple, distinct-sounding common names that people in a population use interchangeably (e.g., scallion and green onion), which can be confusing for an outsider.

The problem of several terms for one species multiplies in societies influenced by multiple languages. Anecdotally, with greater Hispanic influence in the United States, *Coriandrum sativum* L. has become a relatively common cooking ingredient, and the Spanish common name *cilantro* appears at least as prevalently as the herbs' English common names, "coriander" and "Chinese parsley." One species that may have numerous names wherever it is used is *Cannabis sativa* L. In Dominica, it is *kali* in both French Patois and English, *zeb* in Patois, and "marihuana," "weed," "sensi," and "ganja" in English. A species need not be so notorious to have multiple names. Saraguros (Quichua and Spanish speakers), for example, use the terms *pena pena* and *fucsia* for several varieties of fuchsia (*Fuchsia* L.) growing there (Finerman and Sackett 2003). Dominicans usually call *Peperomia pellucida* (L.) Kunth (a wild herb they take for inflammation) by the Patios terms *kouklaya* or *zeb kwes* but also by the English terms "fat grass" and "shine bush." Informants frequently list multiple names for single plants in one freelist exercise, often in succession.

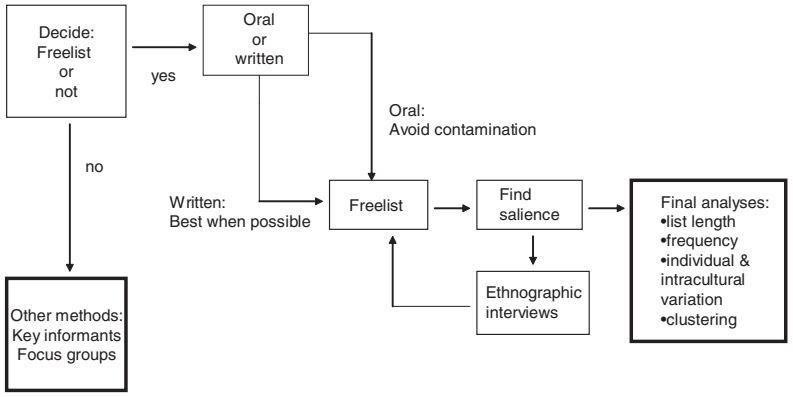
In addition to single species with multiple names, other cases need standardization. A common cross-cultural scenario is for people to identify separate, related species by one generic name (B. Berlin 1992), such as "begonia" for various species in the genus *Begonia*. Local consultants can indicate which specific member(s) of a genus the salient term covers. Nonrelated plants may also share a common name. Dominicans use the Patois name *malestomak* for two plants that have large, deeply veined leaves and treat the same affliction (boils). The two plants look otherwise dissimilar and are indeed not only different species but also from two separate taxonomic families. Thus, conducting interviews in which local consultants identify plants, in addition to freelisting, is the only way to ensure accuracy of inventories from freelists.

Once terms are standardized and analysis reveals salient terms, ethnographic interviews can fill in information about salient items. In medical ethnobotany, for example, informants can describe combinations, preparations, and doses of the salient medicinals and the circumstances in which each plant might be preferred. For example, among salient Dominican treatments for "worms," *sime kontwa* (*Chenopodium ambrosioides* L.) is a general-purpose vermifuge, while *twef* (*Aristolochia trilobata* L.) is for severe cases and *kupiyè* (*Portulaca oleracea* L.) is best for children (Quinlan, Quinlan, and Nolan 2002). In another example, soft candle wax, the third most salient boil treatment (see Figure 1), is used to plaster a medicinal leaf over a boil but is not a treatment alone (Quinlan 2000).

SUMMARY

Freelisting is a simple, accurate, quick way to collect data from a large sample of individuals. Freelists reveal the salience of items in the community and variation in knowledge of the domain in question. Written freelists are advisable in literate communities. Interviewers conducting oral freelists should take steps to prevent bystander contamination. Freelists are especially useful in an iterative or successive process, as outlined in Figure 2. Generally, domains of freelists should be tightly honed: Given broad topical areas, people tend to forget or omit items. They also cluster their responses as they "unpack" their mental subcategories. Omission and clustering of terms may reduce precision of salience estimates. Successive freelists factor out mental subdomains from the original topic. Final interviews in the iterative process are fast (and often enjoyable) for informants and are most complete and accurate for investigators. Responses from freelists should be checked with informal methods. Determining emic definitions of the terms in a domain is neces-

FIGURE 2
The Ideal Process of Freelisting



sary to prevent over- or undercounting responses. Informal methods can also reveal other information about salient items (e.g., how, when, or where a plant is used). With proper attention to detail, freelisting can result in large amounts of high-quality ethnobotanical data.

Notes

1. Drawing the line on how much to focus one's prompt depends on the research question at hand. Cultural experts could potentially parse out items until each prompt corresponds with only a single item.

2. One could omit successive freelists and use only focus groups here. However, freelisted domains are representative of the population, not swayed by charisma or assertiveness of an individual in a focus group.

References

Alexiades, M., ed. 1996. *Selected guidelines for ethnobotanical research: A field manual*. New York: New York Botanical Gardens.

Berlin, B. 1992. *Ethnobiological classification.* Princeton, NJ: Princeton University Press.

Berlin, E. A., and B. Berlin. 1996. *Medical ethnobiology of the Highland Maya of Chiapas, Mexico*. Princeton, NJ: Princeton University Press.

Bernard, H. R. 1994. *Research methods in anthropology*. 2nd ed. Walnut Creek, CA: AltaMira.
Bolton, R., A. Curtis, and L. Thomas. 1980. Nepali color terms: Salience in a listing task. *Journal of the Steward Anthropological Society* 12:309–21.
Borgatti, S. P. 1990. Using Anthropac to investigate a cultural domain. *Cultural Anthropology Methods Newsletter* 2 (1): 8.
———. 1992. *ANTHROPAC 4.00 methods guide.* Columbia, SC: Analytic Technologies.
———. 1999. Elicitation techniques for cultural domain analysis. In *Enhanced ethnographic methods: The ethnographer's toolkit*, vol. 3, ed. J. Schensul and M. LeCompte, 115–51. Walnut Creek, CA: AltaMira.
Boster, J. S. 1987. Introduction. *American Behavioral Scientist* 31:150–62.
Brewer, D. 1995. Cognitive indicators of knowledge in semantic domains. *Journal of Quantitative Anthropology* 5:1047–128.
———. 2002. Supplementary interviewing techniques to maximize output in freelisting tasks. *Field Methods* 14 (1): 108–18.
Crandon-Malamud, L. 1991. *From the fat of our souls: Social change, political process, and medical pluralism in Bolivia.* Berkeley: University of California Press.
D'Andrade, R. G. 1987. Modal responses and cultural expertise. *American Behavioral Scientist* 31:194–202.
Finerman, R., and R. Sackett. 2003. Using home gardens to decipher health and healing in the Andes. *Medical Anthropology Quarterly* 17 (4): 459–82.
Furlow, C. A. 2003. Comparing indicators of knowledge within and between cultural domains. *Field Methods* 15 (1): 51–62.
Gatewood, J. B. 1983. Loose talk: Linguistic competence and recognition ability. *American Anthropologist* 85 (2): 378–87.
———. 1984. Familiarity, vocabulary size, and recognition ability in four semantic domains. *American Ethnologist* 11:507.
Handwerker, W. P, and S. P. Borgatti. 1998. Reasoning with numbers. In *Handbook of methods in cultural anthropology*, ed. H. R. Bernard, 549–94. Walnut Creek, CA: AltaMira.
Hatfield, G. 1994. *Country remedies: Traditional East Anglian plant remedies in the twentieth century*. Woodbridge, UK: Boydell Press.
Henley, N. 1969. A psychological study of the semantics of animal terms. *Journal of Verbal Learning and Verbal Behavior* 8:176–84.
Hutchinson, J. W. 1983. Expertise and structure of free recall. In *Advances in consumer research*, ed. R. P. Bagozzi and A. M. Tybout, 585–89. Ann Arbor, MI: Association for Consumer Research.
Nolan, J. M. 2001. Pursuing the fruits of knowledge: Cognitive ethnobotany in Missouri's Little Dixie. *Journal of Ethnobiology* 21 (2): 29–51.
———. 2002. Wild plant classification in Little Dixie: Variation in a regional culture. *Journal of Ecological Anthropology* 6:69–81.
———. 2004. *Ethnobotany in Missouri's Little Dixie: Cognitive ecology in a regional culture*. Lanham, MD: University Press of America.
Nolan, J. M., and M. C. Robbins. 1999. Cultural conservation of medicinal plant use in the Ozarks. *Human Organization* 58:67–72.
Quinlan, M. B. 2000. *Bush medicine in Bwa Mawego: Ethnomedicine and medical botany of common illnesses in a Caribbean village.* Ann Arbor, MI: UMI Dissertation Publishing.
———. 2004. *From the bush: The frontline of health care in a Caribbean village*. Belmont, CA: Wadsworth.
Quinlan, M. B., R. J. Quinlan, and J. M. Nolan. 2002. Ethnophysiology and herbal treatments of intestinal worms in Dominica, West Indies. *Journal of Ethnopharmacology* 80 (1): 75–83.

Robbins, M. C., and J. M. Nolan. 1997. A measure of dichotomous category bias in freelisting tasks. *Cultural Anthropology Methods Journal* 9:8–12.

Romney, A., and R. D'Andrade. 1964. Cognitive aspects of English kin terms. *American Anthropologist* 66 (3 pt. 2): 146–70.

Ryan, G., J. Nolan, and S. Yoder. 2000. Successive freelisting: Using multiple freelists to generate explanatory models. *Field Methods* 12 (2): 83–107.

Smith, J. J. 1993. Using ANTHROPAC 3.5 and a spreadsheet to compute a freelist salience index. *Cultural Anthropology Methods Newsletter* 5 (3): 1–3.

Smith, J. J., L. Furbee, K. Maynard, S. Quick, and L. Ross. 1995. Salience counts: A domain analysis of English color terms. *Journal of Linguistic Anthropology* 5 (2): 203–16.

Trotter, R. T., II. 1981. Remedios caseros: Mexican American home remedies and community health problems. *Social Science and Medicine* 15B:107–14.

Trotter, R. T., II, and J. J. Schensul. 1998. Methods in applied anthropology. In *Handbook of methods in cultural anthropology*, ed. H. R. Bernard, 691–736. Walnut Creek, CA: AltaMira.

Weller, S. C. 1987. Shared knowledge, intracultural variation, and knowledge aggregation. *American Behavioral Scientist* 312:178–93.

Weller, S. C., and A. K. Romney. 1988. *Systematic data collection*. Newbury Park, CA: Sage.

MARSHA QUINLAN is in the Department of Anthropology at Washington State University. She is a medical anthropologist concentrating in ethnomedicine, ethnobotany, psychological anthropology, and maternal and child health. She has conducted research in the Caribbean and North and South America. She authored a medical ethnography, From the Bush *(2004, Wadsworth), and coauthored articles in* Current Anthropology, Evolution and Human Behavior*, and the* Journal of Ethnopharmacology.