dation to the traditional qualifications for a bride, beauty and obedience, a new qualification has been added: employability.

These social conditions might explain why female students work hard to pass the high school exit exam, why they are the majority in every category of student who passes, and why passing English, one of the most difficult sections on the high school exit exam, is seen as the key to opportunity. These circumstances help explain why female students are instrumentally oriented in Jordan.

IMPLICATIONS

The previous section was intended to show the need of background information on the social and cultural context of the students who are being studied. Without it, little sense can be made of differences found not only within the sample, but between samples, when compared with other studies conducted in different cultural contexts. The interpretation of the findings was partly made possible by the researcher’s extensive work background in the Middle East and familiarity with the language culture. In lieu of personal experience, researchers must employ ethnographic research, which could provide needed cultural information to make such interpretations possible. At the very minimum, research should incorporate individual interviews along with less detailed questionnaires. Clearly this author’s bias rests in a sociocultural explanation of the data. Understanding the cultural factors that influence a student’s motivation and use of strategies is considered one of the processes that underlie and affect successful language performance.

CHAPTER 7

A SYNTHESIS OF APPROACHES TO ASSESSING LANGUAGE LEARNING STRATEGIES

Measure for measure. -Shakespeare

SUMMARY

Researchers have been gathering data on language learning strategies for some time, and the approaches for doing so are numerous. In this chapter the authors analyze six general approaches to assessing language learning strategies: learning strategy interviews and written questionnaires, observation, verbal report, diaries and dialogue journals, recollective studies, and computer tracking. At the present time, no single assessment method prevails in the field. Certain research methods (e.g., questionnaires and observations) are well established but imperfect. Other methods (e.g., computer tracking) are emerging as new research tools, but their potential has not yet been fully explored by researchers. While the use of verbal report as a research tool has come under criticism, it nonetheless has provided numerous insights about the strategies used before, during, or after tasks involving language learning or language use. In any study, a number of variables may affect the appropriateness and outcome of a given assessment method. The authors discuss the strengths and weaknesses of each strategy assessment method in light of these research variables.

INTRODUCTION

Today we are visiting an intermediate Japanese foreign language class. The teacher has just set up a role-play situation between students and their professor in which the students need to request a postponement of the due date for a written assignment. The students are struggling in their minds to find the appropriate language for making this request to their professor, a person of higher status. They make a rapid scan through their knowledge base to identify vocabulary and structures that might be suitable. Then they worry about how to deliver this material. As they are delivering this, they realize that mid-course corrections in what they have said are necessary.

This activity also happens to be the subject of research. The researcher (who might or might not be their teacher) is faced with the task of describing the language use strategies that the students employed in this role-play situation. The problem is how to capture this information. How much can be obtained through interviews or written questionnaires? How much of it is revealed simply by observation? Would it be possible to reconstruct the use of strategies through retrospective verbal reports? Might the learners make helpful, informative entries into their diaries or dialogue journals that evening? This chapter is about the choices the researcher makes in trying to collect data on language learning and language use strategies.

Since language learning strategies are generally internal or mentalistic processes, certain research approaches may fail to reveal adequately which strategies learners apply. Thus, designing a study that assesses strategy use with some accuracy is a challenge. In the body of research on language learning strategies, researchers have utilized numerous assessment methods to determine patterns of strategy use among learners. In this chapter, six of these methods are described: interviews and written questionnaires, observation, verbal report, diaries and dialogue journals, recollection studies, and computer tracking.

For each assessment method, there are a number of issues that the researcher must consider. First, not all assessment methods are suitable for studying every type of language learning strategy, and differences in assessment according to the language skill area being studied (e.g., listening, speaking, reading, writing, and vocabulary learning) are an added consideration. Furthermore, each method of assessment has a certain number of options which can be manipulated by the researcher depending on the aims of the study.

In this chapter, some of the options relevant to language learning strategy research will be described for each method, and in several instances, suggestions for innovations in the use of these methods are provided. In addition, the advantages and disadvantages of each assessment method are offered.

LEARNING STRATEGY INTERVIEWS AND WRITTEN QUESTIONNAIRES

While in many ways oral interviews and written questionnaires are distinct strategy assessment methods, they are similar in that they both elicit learner responses to a set of questions or probes. In addition, they both require the researcher to make choices regarding question format and research procedures.

ADVANTAGES AND DISADVANTAGES OF STRUCTURE

A major dimension of both interviews and written questionnaires is the degree of structure in the questions or probes. Questions can range from those that ask for "yes or no" responses or indications of frequency (e.g., Likert scales) to less structured questionnaire items asking respondents to describe or discuss language learning strategy behavior in detail. In the latter case, the respondents clearly have more control over the information that is included in the answer.

In highly structured interviews and questionnaires, the researcher has a specific set of questions that are to be answered by the respondent in a set order. In this case the researcher has complete control over the questioning; and the respondent usually does not have an opportunity to elaborate on the answers. The data obtained from this type of interview or questionnaire are uniformly organized for all respondents and lend themselves to statistical analysis. A good example of a structured learning strategy questionnaire is the Strategy Inventory for Language Learning (Oxford, 1990c; see also Bedell and Oxford and Dreyer and Oxford, this volume).

At the other end of the spectrum are unstructured questions or probes that simply direct the respondents to discuss a certain area of interest. The duration and depth of the response and the choice of the focus are left largely to the respondent's discretion. Thus, the respondents have the freedom to pursue areas of personal interest with only minimal guidance from the interviewer.

There is also the possibility of semi-structured interviews and questionnaires. Such instruments may reflect anything from a combination of structured and unstructured tests on the one hand to a completely semi-structured measure on the other. For example, an interview with predetermined questions could be used in conjunction with probes to seek elaboration and clarification. In contrast, the interview could just be based on a concise or even a lengthy list of topics rather than specific questions.

The responses to structured instruments may be simplistic or contain only brief information about any one learning strategy. For example, a question that merely asks students whether or not they use mnemonics does not get at some of the more interesting issues: how often they use mnemonics, in what language learning/use situations they think mnemonics are helpful, and whether or not they use mnemonics in their current studies. Furthermore, predetermined questions — especially those that are not carefully piloted — may have ambiguities in their wording and may lead to problems of interpretation on the part of respondents. In addition, if researchers are too explicit about what they mean in a given question (e.g., with the inclusion of specific examples), the question by its nature may motivate the respondents to select a certain response, thus making the instrument less objective.

Unstructured or semi-structured interviews have the advantage of allowing the researcher and learners to pursue topics of interest which may not have been foreseen when the questions were originally drawn up. Yet the reduction of structure also means that the volume of data is increased and the data themselves are likely to be more highly individualized, which could prevent the researcher from determining overall patterns.
ADVANTAGES AND DISADVANTAGES OF LARGE NUMBERS OF RESPONDENTS

Another important dimension in interviews and questionnaires is the number of participants. As few as one subject can be interviewed, which could allow the interviewer to develop a detailed case study of that learner. Working together, the researcher and the learner could generate a description of the most important aspects of the learner's strategy use.

In addition to one-on-one interviews, a researcher could conduct a group interview or administer a questionnaire to learners. In a small group interview, the interview can introduce a topic such as “the use of paraphrasing and gesturing during role-plays” and ask students to comment. One problem with small group interviews is that some subjects’ responses may be affected by social desirability. With their peers listening, respondents may be fearful of producing a socially unacceptable answer. In addition, some subjects may be unwilling to volunteer information in group settings so that the information obtained could be biased in favor of students who are more outspoken in the given group. However, small group interviews may be more cost-effective and time-efficient than individual interviews with multiple language learners.

In contrast to interviews, written questionnaires are usually administered to large groups of learners and/or to groups at various sites. A major benefit of large-scale questionnaires is the potential for generating and testing hypotheses because of the large number of respondents. On the other hand, a given questionnaire may not transfer well from one setting to another, either because there are significant differences in the way that the questionnaire is administered or because the respondents in the different sites differ in how they interpret the items. This could be especially true if the measure is translated and used in other cultures.

ADVANTAGES AND DISADVANTAGES OF FORMALITY

Yet another factor in the design of interviews and written questionnaires is the degree of formality. Of concern here is the manner in which questions are asked of learners and the extent to which the questions and the setting encourage learners to relax and provide more accurate, honest answers. To a degree, formality is affected by the rapport established between the interviewer and the subjects and is independent of the degree of structure. It is possible to have an interviewer conduct a highly structured interview in a friendly and informal manner. On the other hand, in an unstructured interview, the interviewer could have a highly formal manner for asking questions or following up on interesting topics. A manner that is too informal may not be desirable if the researcher wants to keep enough distance from the students to maintain objectivity and the ability to pursue crucial topics. Yet, the subjects should feel comfortable talking at length about their learning, including affective (emotional) aspects. In the interview too formal, then the students may be reluctant to discuss the learning environment.

TOWARDS MORE ACCURATE STRATEGY DESCRIPTIONS

One of the main problems with interviews and questionnaires as a whole is that much of the data constitutes self-report or the learners’ generalized statements about their learning strategy use (see the following section on verbal report for a more complete description of terminology). Once learners move away from instances of language learning or language use behaviors, they may also tend to become less accurate about their actual learning strategy behavior (Cohen, 1987). Learners may overestimate or underestimate the frequency of use of certain strategies. They may also be unaware of when they are using a given strategy, and even more importantly, how they are using it.

To avoid this problem, the researcher may wish to have respondents focus on recent language learning strategy use. The questions would attempt to have the respondents think of specific learning events or activities as opposed to more generalized behavior patterns. For example, the researcher could interview students or give a questionnaire to students immediately following a language task and ask questions specific to that task. For instance, the learners could perform the task seated at a booth in the language laboratory, and they could record their verbal report data directly into the microphone at their console. This type of information would constitute self-observation. The next section discusses observation by the researcher.

OBSERVATION

The major challenge in attempting to apply observational techniques to language learning strategies is that much of the interesting information cannot be observed because it is mentalistic and not behavioristic. Access to it must come from interviews, written questionnaires, and verbal report (see below), wherein the learners generate the data. Observational methods must rely on participant or non-participant observers to produce the data — whether from structured observation schedules, from ethnographic field notes, or from other methods. In planning an observational study, the researcher needs to consider a variety of factors: the number of observers and observed, the frequency and duration of observations, and how the observational data are collected, tabulated, and analyzed.

With regard to the number of observers, an investigator may choose to observe a language learning activity alone or with other observers, each scrutinizing the same or different learners, at the same time or at different times. There will be trade-offs if the observations focus on one learner as opposed to focusing on a small group or on an entire class of language learners. Especially in the observation of language learning strategies, observing the entire class may be most profitable in that waiting for one learner or a small group to reveal their use of strategies may not provide much useful data. Of course, it is possible to record nonverbal behavior (e.g., students’ facial expressions, gestures, signs of alertness, and so forth), as well as to observe written behavior by sitting next to learners and taking note of what they write in their notebooks.
Another factor is the frequency and duration of the observations. First, the investigator has to determine the number of observations over time. If meaningful data are to be obtained from observation of learning strategy behavior, then it is likely that the investigator will need to visit the same class over an extended period. A more limited observational framework may work best if the objectives of the observation are limited, for example, just getting a feeling for the classroom climate in which the learning strategies took place or using the observational data simply to jog the learners' memory as to the classroom events during those specific lessons. Secondly, researchers need to make choices about their focus — whether, for example, to focus on a 15-minute role-play activity or to observe an entire class period in order to collect data on the use of speaking strategies.

Yet another factor concerns how the observation is conducted. It is likely that the investigator will be physically present in the room while the learning activity is taking place. In addition, audio and videotapes may also be taken of the class session in order to create a more permanent record of what occurred. Although sophisticated means of collecting video and audio data now exist, there are always instances of events that somehow do not get captured by the available technology, so that the presence of live observers may play a crucial role in both the collection and the interpretation of the language learning strategy data. Note that if the activity is videotaped, the investigator would also be able to replay the tapes for learners and thereby use the tapes not just for observational data but as an aid in the collection of verbal report data as well (see below).

The final factor concerns the researcher's method for recording strategy use. One option is note-taking, which can be more or less structured. The researcher can take broad, impressionistic notes of everything of relevance that occurs, or the note-taking can focus on a few types of strategies or behaviors (Oxford, 1990b). The researcher may be able to take more complete notes if the observation is recorded on audiotape or videotape. Another option is using some sort of observation scale or checklist. An example of a strategy observation scale is "The Class Observation Guide" (used in O'Malley, Chamot, Stewner-Manzanares, Kipper, and Russo, 1985a). Finally, the investigator may wish to combine the use of an observation scale with note-taking to obtain more complete data.

ADVANTAGES OF OBSERVATION

Observation has benefits when used to describe learning strategies that are clearly observable. In such instances, the data are likely to be uniform, assuming the researcher uses the same terms to describe identical phenomena. Second, external observational records may help to lend a more impartial, objective perspective to the research study, rather than relying solely on data provided by learners. Furthermore, if the observation information is collected in a structured form (such as an observation scale), the resulting data may be quantifiable in nature. Thus, the data can be analyzed statistically and used to generate or test hypotheses. In spite of these potential advantages, though, observation will continue to have limited applications to learning strategy research because so much strategic behavior is unobservable.

DISADVANTAGES OF OBSERVATION

The key drawback of the observational method is its inability to produce descriptions of internal or mentalistic strategies like reasoning or self-talk, as suggested above. Investigators can note behavior such as asking for clarification, but many strategies never result in an obvious behavior. Thus, an observational study may reflect a largely incomplete view of the learner's actual strategy use and may result in frustration. For example, Naiman, Fröhlich, Stern, and Todesco (1978) had difficulty determining when high school students of French were using circumlocutions. Fanselow (1979) noted that seemingly obvious questions asked by teachers may have implicit messages that cannot be easily interpreted, even after asking the speaker for clarification.

VERBAL REPORT

Often methods such as classroom observation produce indications or clues as to the strategies learners use, rather than instances of actual strategy use. Hence, researchers have had to rely to some extent on their own intuitions in order to produce descriptions of strategy use. Verbal report measures provide a more viable — perhaps the most viable — means of obtaining empirical evidence as to strategy use. Verbal report methods are being employed as a means of obtaining strategy information in the areas of communication (e.g., Polli, 1989; Polli, Bongaerts, and Kellerman, 1986), translation (Fæcher and Kasper, 1986; Krings, 1987), test taking...
(Anderson, 1989; Cohen, 1980, 1984, 1994; Feldman and Stemmer, 1987; Gordon, 1987; Nevo, 1989; Stemmer, 1991), and language learning or language use (Cohen, 1990a, 1990b). A characteristic of many of the current verbal report studies across the different activity areas is their dependency on the information processing model (Ericsson and Simon, 1994, pp. 11–24), which only allows the reporting of information that is processed in a serial, controlled fashion — a notable departure from verbal report data collected in the past (see Tichener, 1912).

TYPES OF VERBAL REPORT

Verbal report measures have played a role in a significant number of research studies on language learning strategies. Many insights about these strategies have been obtained from learners as they provided verbal report data before, during, and after performing language learning or language use tasks. It is important to note that verbal report is not one measure but instead encompasses a variety of measures intended to provide mentalistic data regarding cognitive processing. Such verbal reports include data that reflect self-report (learners’ descriptions of what they do, characterized by generalized statements), self-observation (inspection of specific, not generalized, language behavior introspectively or retrospectively), self-revelation (think-aloud, stream-of-consciousness disclosure of thought processes while the information is being encoded), or some combination of these (Cohen, 1987; Cohen and Hosenfeld, 1981; Radford, 1974).


Perhaps a motive for moving beyond self-report to self-observation and self-revelation is to obtain data describing an instance of language learning or language use at or near the moment it occurs. Such data might be expected to reflect more accurately what learners actually do than might the response to a questionnaire item calling for a description of generalized behavior. Questionnaire items are more likely to elicit learners’ beliefs about what they do, rather than what they actually do. In effect, self-revelation and self-observation complement self-report — to produce convergent assessment of learning strategies. Let us take a look at issues of controversy regarding this method of data collection.

DISADVANTAGES OF VERBAL REPORT

Critics of verbal report methods note that much of cognitive processing is inaccessible because it is unconscious (see, e.g., Seliger, 1983). Critics among second language researchers have contended that whereas verbal report methods may help to describe language use strategies, it remains to be demonstrated whether they can inform about language knowledge or skill learning, as this information is more likely to be unconscious (Seliger, 1983). Even if the processing is not unconscious, it might be either too complex to capture by verbal report (Dobrin, 1986) or might put too great a burden on learners’ memories for them to report with any accuracy. Thus, researchers who use such measures either somehow have to raise the level of conscious awareness of processing or make do with insights to which respondents have conscious access. The use of such measures may also require of respondents that they unravel some of the complexity inherent in a given set of cognitive processes and/or improve their recall skills.

In addition, it is possible that if the information is not directly accessible (i.e., the tasks involved are largely automatic), probes may force the subject to produce a verbal response that is not closely related to the actual thought processes (Ericsson and Simon, 1980). Verbal reports may also be too dependent on introspection in that it can take 20 minutes to report on one second of mental processing (Boring, 1953). What may have begun as an introspective account quickly turns into a retrospective one.

Critics likewise refer to the tendency to repress data — to supply socially acceptable data (Bakan, 1954). Thus, protocols may be systematically contaminated by an indulgence in shared assumptions (Dobrin, 1986). In fact, protocols have been depicted as an edited replay of the respondents’ perception, an invention of the respondents’ folk psychology (Lyons, 1986). Not only the cultural background of the respondent, but also the background knowledge or schemata that the respondent has about the performance of such verbal report tasks may play a role (Cavalcanti, 1984).

Furthermore, verbal report methods have been criticized for their potentially intrusive effect. For example, in reading research, immediate retrospection may distort the process of reading if the reader read more closely than normal, read sentence by sentence, or concentrate on the additional cognitive or metacognitive task (Mann, 1982). Not only is it possible that the verbal report task may cause reactive effects, and thus produce data no longer reflecting the processes under investigation, but it is also possible that the results will vary according to the type of instructions given, the characteristics of the participating subjects (some more informative than others), the types of material used in collecting protocols, and the nature of the data analysis.

For example, respondents may differ with respect to their verbal skills. Some may be more adept than others at providing the appropriate amount of verbal report data at the appropriate level of specificity. Also, respondents may use different terms to de-
scribe similar processes or the same terms for different processes. A way of getting around this would be to train the respondents in the terms to use in their responses. However, such a form of intervention may distort the data in cases where respondents are meant to supply their own labels for cognitive processes. In addition, differences may exist between written and verbal report so that studies which combine both sources of data may ultimately find the two types of data incompatible (Afferbach and Johnston, 1984).

Finally, there is the potential problem that could arise when respondents do a task in a target language and report on it in their first or another language. The problem is that the respondents are likely to be recoding the information, which may in itself cause information to get lost due to limits of memory capacity as well as other factors such as accuracy during the translation of thoughts. The reporting (especially in on-line self-revelation) may alter the original thought processes more than when no recoding takes place (Faerch and Kasper, 1987, p. 19).

**ADVANTAGES OF VERBAL REPORT**

While the critics would suggest that these numerous problems with verbal report measures seriously limit the generalisability of the findings and might even preclude their use, proponents of verbal report would argue that cognizance of these problems in planning the research design may help avoid some of them.

Perhaps the major purpose for using verbal report protocols is to reveal in detail what information is attended to while performing tasks — information that is otherwise lost to the investigator (Ericsson, 1988). Whereas the neurological origin of cognitive processes may not be available for inspection, the cognitive events themselves are often available through verbal report (Steinberg, 1986). Language learners may underestimate the extent of conscious (or potentially conscious) processing because they are not attending to it. Furthermore, the directness of introspection gives it a character not found in any other investigation of psychological phenomena (Bakan, 1954).

Whereas reliability of mentalistic measures has been questioned in comparison with behavioristic measures, research has demonstrated that verbal reports, elicited with care and interpreted with full understanding of the circumstances under which they were obtained, are, in fact, a valuable and a thoroughly reliable source of information about cognitive processes (Ericsson and Simon, 1980; Pressley and Afferbach, 1995). In a number of settings, for example, subjects' reports of their hypotheses and strategies have proved to be highly correlated with their subsequent behavior — and are often the most accurate predictors available (Lieberman, 1979).

As noted earlier, verbal reports have been used in numerous ways as a source of data for understanding language learning and language use. With respect to second language learning, the uses of verbal report have been admittedly limited. Immediate retrospective verbal report has, for example, helped describe strategies in vocabulary learning by association, such as through mnemonic keywords (Cohen, 1990b; Cohen and Aphek, 1981). Such strategy data provide at least partial information regarding vocabulary learning processes, regardless of whether the learner subsequently produces a correct retrieval of the vocabulary item. With respect to language using, the research literature is more extensive. For example, the think-aloud method has broadened the scope of what is described in text processing by providing insights as to the use of knowledge in text comprehension and as to the monitoring of this and other comprehension processes (Waern, 1988). Furthermore, helpful information about the writing process has been derived from protocol analysis without having to account for every mental process (Smagorinsky, 1989).

Finally, it needs to be pointed out that verbal report is not a replacement for other means of research but rather a complement to them. All research measures have their potential strengths and weaknesses.

**DIARIES AND DIALOGUE JOURNALES**

**DIARIES**

In an effort to collect data on learners' strategy use over a period of time, some researchers have turned to diaries as a research tool. Even though diaries are described as "first-person journals" (Bailey and Ochaner, 1983), they often contain longer narratives and other information that is not in the first person. Despite this, we will continue to use the term diary rather than journal for an individual written reflection on current language learning.

**DIALOGUE JOURNALES**

A second way to collect learners' thoughts and emotions in written form is through a dialogue journal, which adds an important element to diaries: a reader who responds (and ideally, at length) to the learners' writing. In classroom settings, the reader is generally the teacher, but other students or classroom aides may participate as readers. In theory, the dialogue journal is supposed to be an ongoing, written conversation between the student and the reader about topics that have been generated by the student (Peyton and Reed, 1990). In reality, however, respondents may make only brief — often one-sentence — comments on the writing rather than participating equally in the dialogue. Dialogue journals have been used widely in first and second language classrooms to encourage students to write frequently on topics of interest to them. It appears that dialogue journals have yet to be used as a research tool in formal studies on language learning strategies.

**FORM AND CONTENT**

Since diaries and dialogue journals are learner-generated and usually unstructured, the entries may cover a wide range of themes and issues. For example, the entries may include learners' written verbal reports of the cognitive, metacognitive, and social strategies they use daily in language learning. For the most part, verbal report
in diaries and dialogue journals constitutes retrospective self-report or self-observation since learners generally write their entries after the learning event has taken place. For example, learners could describe what they usually do when they do not understand the teacher's instructions (an example of self-report) or could describe a specific incident in that day's class session during which they requested clarification of the teacher's instructions (self-observation).

Depending on the nature of the language learning strategies being studied, the researcher may be able to elicit from learners self-revelation data in diary and dialogue journal entries. Perhaps the simplest way to obtain entries with self-revelation is to have students take notes during the language learning task and then transcribe their notes into diaries or dialogue journals later that day. (These notes could be interspersed among the regular class notes involving new vocabulary, grammar, or whatever.) If the students take good notes, they may be able to reconstruct their thoughts at the time of the learning task with some accuracy.

There is another option for using diaries to obtain self-revelation during the writing process. While performing reading or writing tasks in the target language, learners could keep a separate page or use a wide margin on the composition page to make comments about the difficulties they are encountering in strategy use or in finding strategies to use during their reading and writing tasks. For example, learners could note that they are not sure if they correctly understood or used a verb tense in a particular sentence. In addition to hearing from the students about their reading and writing problems, a teacher could review the learners' notes and respond to specific problems. The result would be a dialogue journal that provides self-revelation and self-observation data specific to the reading or writing process.

DISADVANTAGES OF DIARIES AND DIALOGUE JOURNALS

Two serious drawbacks of diaries and dialogue journals are the volume of data produced and the potentially random nature of the entries. If learners write on self-chosen topics, the data are cumbersome to read and may not suggest or support any hypotheses regarding language strategies. In fact, many learners may not even mention learning strategies at all. To avoid this problem, some researchers have directed students to write about specific language learning strategies, such as inductive and deductive inference (Rubin and Hense, 1981). In the diary study in this volume (Oxford, Lavine, Felkins, Holloway, and Saleh), students were asked to focus on their strategies for listening comprehension, grammar, and vocabulary. Yet if researchers require students to write only about specific strategies, then the learners might be less cooperative than if they were simultaneously given an outlet for describing concerns about their overall language learning experience.

The dialogue journal may offer an easier way to concentrate students' writing on learning strategies. If a learner provides insufficient information regarding the use of a given strategy, the researcher could, in responding to the entry, ask for further explanation of the learner's strategy use. Even if the researcher is able to focus students' writing on a certain learning strategy, the resulting data are still difficult to work with. First, the resulting information is more qualitative than it is quantitative, and the technique for summarizing and analyzing qualitative data will not be as applicable (Bailey, 1981); thus the researcher is left without a rigorous means of testing hypotheses. However, as shown by Oxford, Lavine, Felkins, Hollaway, and Saleh (this volume), qualitative data can be transformed to quantitative data through content analysis procedures.

Second, the typically small number of subjects in diary or dialogue journal studies ordinarily restricts the ability of researchers to generalize the findings to all language learners of a given age or proficiency level (Bailey, 1991; Nunan, 1992). We should also note that diaries and dialogue journals are subject to the criticisms of verbal report since the data on learning strategies are in fact self-report and self-observation.

ADVANTAGES OF DIARIES AND DIALOGUE JOURNALS

In spite of these limitations, diaries and dialogue journals can be useful research tools. The aim of most diary studies is not to produce rigorous quantitative results which are generalizable to language learners as a whole; instead, diaries have been used to find out what is significant to the learners, a very important area of concern (Bailey, 1991). Furthermore, much of the data that are collected in a diary or dialogue journal may be inaccessible through other research techniques (Nunan, 1992). In addition, diary and journal writing may be of benefit to the students themselves because regular writing can help them become more aware of their strategies.

A final plus with regard to diaries is that they can be kept anywhere by anyone. Learners have the option of writing for even several months before giving their diaries to a researcher for analysis. Therefore, diaries may be more conducive than dialogue journals to research on learning in less structured learning environments (e.g., an overseas setting where the learner lives for three months with a family during summer vacation). One such diary was kept by Rivers (1979) during a trip to Chile.

In the case of dialogue journals, the learners and reader(s) must be able to correspond with each other easily and frequently. For this reason, most dialogue journals are kept by people who see each other regularly. On the other hand, it would be possible to set up a dialogue journal arrangement between learners in one location and readers in another, using electronic mail as the link.

RECOLLECTIVE STUDIES

Recollective studies (sometimes called "learner histories," see Green, Oxford, and Green, 1995) involve thinking back to some prior language experience and attempting to reconstruct what it was like. While journals reflect a learner's periodic, ongoing record of strategy use while participating in the learning process, a recollective account refers to a learner's description and interpretation of a language learning experience that occurred months or even years before. Although recollective
study may contain information about specific strategies or problems the learner encountered, given the time lapse the learner is more likely to recollect about the experience as a whole, possibly comparing two or more experiences. Journals, on the other hand, often focus on the specific language learning setting in which the learner is involved at the time and can be limited to a certain set of strategies that are of interest to the researcher.

Recollective studies can take a variety of forms, depending on the preferences of the subjects or the researchers. The information could be in the form of written narratives or poems (see Oxford, Lavin, Felkins, Holloway, and Saleh, this volume) or responses to an oral interview, where information is tape-recorded and then transcribed. The recollections often consist of a description of significant events in the learner's experience while studying the language, such as going through a silent period or dealing with different sets of emotions that emerge in various environments. If interviews are used as a means of getting the learners to recollect, the emphasis would presumably be on creating an environment in which the learner feels comfortable about describing language learning events from the sometimes distant past. A key element here would be to ensure the learners' freedom to retell the significant aspects of their personal language learning experiences in any appropriate form, most likely unstructured.

DISADVANTAGES OF RECOLLECTIVE STUDIES

The major drawback of this assessment method is the inevitable memory deterioration between language learning experience and the research study. The time lapse creates several problems: loss of detail over time, general nature of remaining information, generalizations made by learners about strategies used or problems encountered, and possible reinterpretation or distortion of events. Consequently, the results of any recollective study should be viewed as anecdotal, highly individualistic, and possibly distorted accounts of students' learning experiences.

ADVANTAGES OF RECOLLECTIVE STUDIES

In spite of these problems, recollective studies have advantages. First, this type of study may be more objective because of the learner's distance from the experience. Second, the learner can provide an overall summary of the learning experience because recollections are unlikely to be burdened with too many details. Third, this type of study allows subjects to gain important personal insights as to learning strategies that have tended to work for them (e.g., setting specific goals, such as ordering a meal in the target language) and as to settings that they have tended to prefer (e.g., chatting in a café versus discussing a topic with a partner in class). This self-awareness of personal learning preferences can be of significant value to students to want to take an active role in managing their own future learning experiences.

As the number of recollective studies increases, it may become possible to discern patterns in the recollections themselves. In other words, it may be found that certain types of strategies are more likely to be recollected than others. For example, a strategy dealing with an emotional upset around a language goof may come to mind more readily than a strategy for remembering certain grammar points.

COMPUTER TRACKING

Researchers are now starting to explore the potential of computer tracking in assessing language learning strategy use. This may turn out to be a promising tool for certain areas of research. Such programs can be used to collect information either with or without the learner's awareness. Such tracking could get at language learning strategies associated with the use of resource functions accompanying word processing programs, the order of processing of elements in reading text for comprehension or in producing written text, and the choice of speed for reading and writing tasks. As of the present time, the computer tracking technology has been applied in only a limited way to researching learning strategies. The strategies investigated are those supplied by computer programs in the form of resource functions.

Tracking can unobtrusively create a log of learners' uses for various resource functions contained within the computerized language program, whether in writing tasks (e.g., word processing, filling out forms), reading tasks (a summarization exercise, a cloze task, a multiple-choice reading comprehension task), or grammar drills. These resource functions could include a dictionary, a thesaurus, a reference grammar, a style checker, a spell checker, tutorials on how to complete given language tasks (e.g., formation of verb tenses), and background knowledge on a given topic (Chapelle and Mizuno, 1989).

With the exception of the observational method, the research methods discussed so far have relied on the learner's self-generated descriptions of strategy use, either through written or oral assessment techniques, and as noted above, results of these assessments can be problematic for various reasons. By automatically recording a learner's use of a resource function, the computer eliminates the problem of distortion through human inaccuracy or unawareness. Chapelle and Mizuno (1989), for example, studied the extent of use of resource functions by high and low proficiency ESL students doing computerized grammar lessons. Baily (this volume) reports a study using a French word-processing program to record individual adult students' use of resource functions while the students worked on essays. These resource functions included a dictionary, a set of vocabulary and phrase groups, a reference grammar, and a spell-checker. Baily looked for evidence of four compensation strategies: using synonyms, using circumlocutions, coining new words, and approximating the message.

DISADVANTAGES OF COMPUTER TRACKING

One limitation of computer tracking is its inability to describe language learning or use strategies which do not result in the use of a resource function on the computer. For example, a computer would be unable to detect a learner's use of inferencing to
determine a word’s meaning. In other words, the strategy must result in a concrete manipulation of the computer program; otherwise, the computer will be unable to detect the use of that strategy. Thus, computers may be better able to provide a comprehensive picture of strategy use when employed in tandem with another method, such as verbal report, which can capture mentalistic strategies.

Another limitation of computer tracking is that its very on-line nature may interfere with the collecting of data. For example, it is easier to collect such data from reading and writing tasks than from listening tasks, and next to impossible to collect such data from speaking tasks without task disruption.

Use of computer tracking as an assessment tool is also affected by other practical matters. As Baily (this volume) notes, some students are more comfortable than others with computer technology. Second, inferring strategy use by comparing computer logs to final compositions or reading comprehension tests may be difficult in certain circumstances. There is always the danger that the researcher will be mistaken in the strategy inference. Third, research might be limited by the lack of commercial availability of programs. This may limit the languages that are used for research. Finally, the resources in the computer programs themselves may be limited, causing some students to use other dictionaries or reference grammars.

ADVANTAGES OF COMPUTER TRACKING

Regardless of the above limitations, computer tracking has a potential use in certain kinds of research. In fact, such programs are quite suitable for studying strategies for producing written language while lacking adequate linguistic knowledge. To a more limited extent, computers can track strategies for forming concepts and hypotheses by keeping a log of the learner’s use of resource functions to look up unknown words or phrases during the composition or reading process.

CONCLUSIONS

Every assessment method offers unique advantages as well as disadvantages. The challenge for researchers is to choose an assessment method that will provide the desired information for the given study. In a fledgling field like second language strategy use, there is as yet no fully established set of assessment procedures, so it is necessary to try out different approaches and evaluate their effectiveness.

Issues influencing choice of assessment method and selections of options within the method include the following: the purpose of the study (to generate hypotheses or to conduct a detailed case study of one learner), the number of learners and researchers, the resources available, the strategies to be studied, the types of language tasks for which the strategies are used (e.g., speaking or reading), and the context in which the language learning takes place (e.g., a university class or a three-month visit to a foreign country).

The potential of some assessment methods has yet to be extensively explored by researchers. For instance, computer technology has been used in only a limited number of studies on language learning strategies to date. As researchers become more familiar with computers and other assessment options, new assessment methods will surely be developed.

Given the problems inherent in any assessment method, researchers may want to use a combination of assessment methods. Returning to the example with which we opened the chapter, namely wanting to describe the speaking strategies used in role-playing in an intermediate-level university course in Japanese, we would ask the question, “How best might we describe the speaking strategies of these students?”

We could start by asking how much could be obtained through interviews or written questionnaires. If written questionnaires might not be appropriate in this case, it would be possible to interview the learners and to include verbal report techniques in the interview. Since the learners are usually given a few minutes to think about the role-play before starting, the researcher could request that they provide self-voration (think-aloud) data during this time. These data are likely to include planning and rehearsing strategies such as searching for patterns (prefabricated) phrases and attempting to paraphrase in the case of unknown words.

Next we could utilize retrospective verbal report to reconstruct the use of strategies just after the generating of the utterances. For example, the researcher may wish to ask a student about the usage of a certain phrase in order to determine whether it is a small number of approximation (when learners are unable to find a particular target language word and substitute a similar, perhaps more general word instead, as in “tool” for “wrench”). The greater the time lapse between the role-play and the follow-up interview, the greater the likelihood that memory deterioration will take place.

Then we could determine whether any of the data could be collected by means of observing the learners and videotaping the conversations. As mentioned above, not every strategy is actually observable, but the researcher may see evidence of the following: keeping in the target language, translating words into the native language, miming, gesturing, appealing for assistance, and coining new words. As a backup to the observations, we could check the videotapes to see whether the use of any of these strategies was captured on video.

In addition, we could show the video of the speaking task to the learners to prompt their memory. If the learners are to view the videotape, the timing of the interview may be an issue to consider. On one hand, we may want to replay the videotape for the learners soon after the actual speaking task in order to avoid the effects of memory deterioration as much as possible. On the other hand, the researcher may wish to view the video numerous times in order to formulate questions that would be asked in a subsequent session.
Finally, the learners could be encouraged to make entries into a dialogue journal which the teacher would collect and to which he or she would respond. Special permission could be obtained to allow researchers access to these journals as well. The learner entries could provide more insights regarding strategy use, in some cases clarifying or elaborating on points made during the verbal report interviews. As an incentive to the learners, the teachers could offer extra credit for those students who keep journals. Ideally, the teachers would be knowledgeable enough about the research that their replies to the learners would help to provide more focus to future entries.

In conclusion, researchers and teachers have a variety of assessment methods at their disposal, and these methods may be combined in any number of ways to collect the most useful strategy data for a given study. The field of language learning strategies may benefit most from a wide application of assessment methods in multiple research contexts.

PART II:
HOW CAN WE IMPROVE STRATEGY USE AROUND THE WORLD?