RETROSPECTIVA

RECENT USES OF MENTALISTIC DATA IN READING STRATEGY RESEARCH [1]

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*ABSTRACT: Nestes últimos anos tem aumentado o interesse
no emprego de medidas mentalísticas no estudo do proces
so de leitura, tanto para as intravisões que as descri-
ções fornecem aos professores no seu ensino quanto para
as intravisões que as mesmas descrições fornecem   para
os leitores na sua leitura. Depois, definem-se "estraté
gias na leitura" e métodos de informe verbal para estu-
dá-las. A última parte do artigo trata de pesquisas fei
tas por estudantes na Universidade Hebraica de Jerusa-
lém que se utilizaram do informe verbal em quatro áreas
principais de investigação a saber: (1) o desenvolvimen
to de uma taxonomia para estratégias de leitura, (2) a
verificação de adequação de medidas mentalísticas para
populações diferentes, (3) a determinação de similarida
des entre a leitura na língua materna e num idioma   es
trangeiro, e (4) a descrição do processo quando os alu-
nos fazem testes de compreensão de leitura. O artigo
pretende apresentar descobertas que sejam ilustrativas
dos tipos de dados empíricos que se pode obter por in-
termédio das medidas mentalísticas.*

In recent years there has been an increasing inte-
rest in describing the reading process, both for the in-
sights that such descriptions may provide for   teachers

and for readers in their reading. The focus has   been
broadened to include not just the product of reading   -
namely, some indication of reading comprehension - but
the processing that produces or does not produce compre
hension. It has become increasingly clear that various
traditional means of assessing what the reader is   com-
prehending are limited in their descriptive power. Tea-
cher observation or even results on reading   comprehen-
sion tests, for example, may not give an accurate   pic-
ture of an individual's reading ability beyond basic re
coding (symbol to sound) and decoding (sound to meaning)
skills.

      At the more basic level of recoding and   decoding
skills, as manifested in beginning reading, external ob
servation may well be an effective way to obtain   read-
ing strategy data. In fact, in some research situations
it may be one of the only viable ways.   For example,
Naveh (1985) was interested in investigating the   read-
ing strategies of nine illiterate adult Ethiopian immi-
grants to Israel during their first several months   of
intensive Hebrew language instruction. She did not speak
any Amharic, they did not speak any Hebrew, and   there
was no translator readily available. She had to rely on
giving the learners explicit examples of each oral read
ing task requested of them (such as reading words   and
phrases and breaking down and building sentences),   and
then on doing close-order observation of every strategy
that could be inferred from learners' reading output.

      This observational approach produced   a   large
sample of strategies observed to be in use by those il-
literate adults who were less proficient beginning read
ers: reading synthetically rather than globally, rehear
sing a word before reading it aloud to a teacher, being
dependent on the first part of a word in order to recog
nize its meaning, and having to read all the words in a
string in order to pick out a desired word rather than
scanning to find the word (Naveh 1985). As external   as

many of these initial reading behaviors may have appear
ed, it was still the case that the list of   strategies
obtained was not verified by the readers themselves,and
so some of the inferred behaviors may not have   been
accurate.

When students read silently for the meaning   of
connected discourse, teachers can only guess what stra-
tegies are being used. It has become evident that learn
ers may arrive at false conclusions about the   meaning
of texts for reasons of which teachers are unaware   and
that some of those reasons may in fact be counter-intui
tive to the teachers. Oral recitation in front of   the
teacher and the class - beyond the basic recoding   and
decoding levels - may not solve this problem   because
such reading generally does not mirror silent reading.
Often when reading silently, readers skip words   and
phrases in their pursuit of meaning. They also make re-
gressions to pick up the thread.   In oral   recitation,
they read word for word, focusing more on correct   pro-
nunciation and punctuation than on a deep understanding
of what they are reading. Thus, oral recitation is   an
activity which may give a misleading impression   about
the reading abilities of students, especially if it   is
used, as in "miscue analysis" (Goodman 1973), to deter-
mine the process of reading for meaning (see   Neuman
1978; Engkart and Semmel 1981; Leu 1982).[2]

Tests of reading comprehension have   also   been
found to have their limitations, given   the numerous
techniques that readers develop for obtaining   correct
answers on such tests without fully or even   partially
understanding the text. Fransson (1984), for   instance,
illustrates how respondents' fixation on specific ques-
tions while reading may result in their no longer   pro-
ceeding via the text but rather around it. Rather   than
indulging in deep-level processing, they engage only in
surface-level processing adequate for the given quest-
ion, particularly if the response format for the quest-

ion is of the the short-answer or multiple-choice vari-
ety.

Given the limitations of observation of oral reci-
tation and the analysis of test scores in accurately as
sessing reading comprehension skills, researchers   are
becoming more interested in mentalistic measures. In a
mentalistic approach to reading, if readers read aloud,
such oral reading is not a recitation. Instead,the read
ers are simply externalizing a process that might   be
subvocalized. In other words, they now mumble out loud,
as well as adding on any commentary that normally comes
to mind while reading. In a mentalistic approach to the
assessment of reading ability, the respondents   report
on their processing of both the text that they read and
of the questions that accompany the texts. They   also
describe how they arrive at answers to questions.   Re-
search in both native language reading (e.g., Olshavsky
1976/1977, Baker and Brown 1984, Wagner 1983) and   in
second language reading (e.g., Hosenfeld 1984) have dem
onstrated that verbal report protocols obtained through
tapping the mental processes of readers have   produced
key insights into processes involved in reading.   In-
sights are also being obtained as to how students   ac-
tually take reading comprehension tests as opposed   to
what they are expected to be doing (Cohen 1984b).

An initial focus of mentalistic studies on   the
reading process was to identify good and bad   reading
strategies so as to train readers in the use of "good"
ones. It has currently become clear that such an   ap-
proach was simplistic in that strategies may not be in-
herently good or bad for a given reader. Rather,   the
particular text, the context in which the reading is go
ing on, and the choice of other strategies in   conjunc-
tion with that one. In other words, the selection of a
given strategy under a certain set of circumstances may
create reading failure even though other strategies pro
moting comprehension are also in use (Sarig 1985).Hence,

there is a current shift in research to deal with   the
description of reading behavior that promotes or deters
comprehension rather than to attempt to describe   the
"ideal" reader.

     This paper is intended to demonstrate ways   in
which mentalistic measures have been used   effectively
in research on the reading process at the Hebrew University
sity. The studies to be reported on have all been   con-
ducted by students as theses or seminar papers.

Reading strategies and verbal report methods for study-
ing them.

     "Reading strategies" refer to those mental process
es that readers consciously choose to use in accomplish
ing reading tasks. Such strategies may contribute   to
successful comprehension or detract from it. In principle,
what distinguishes strategies from other processes   is
the element of choice involved in their selection.   In
reality, the amount of attention that readers pay   to
their choice of strategies falls on a continuum from to
tal attention to total lack of attention. If readers are
requested to indicate the strategies that they use, it
is likely that they would be able to describe even   the
ones that they are attending to the least, since   these
are, by definition, within the realm of conscious aware
ness. They would not, however, be able to describe cer-
tain unconscious reading processes.

     There are basically three forms of mentalistic da-
ta used to discover the strategies that readers use, na
mely, self-report, self-observation, and self-revelation
(Cohen and Hosenfeld 1981, Cohen 1984a, Cohen   1984c).
The first, "self-report", refers to learners   descrip-
tions of what they do, characterized by generalized sta-
tements about reading behavior (e.g., "When I have   a
word I don't understand, I do my best to get its mean-
ing from context. Only if that fails do I go to the dic

tionary.") or labels they apply to themselves   (e.g.,
"I'm a plodder when reading in another language.I start
on the first word and go to the last. I can't skim   at
all."). Such statements are usually based on beliefs or
concepts that the learners have about the way that they
are when they read, and are often not based on the   ob-
servation of any specific event.

"Self-observation", on the other hand, refers   to
the inspection of specific reading behavior,   either
while the information is still in short-term memory, i.
e., retrospectively (usually after 20 seconds or so). [3]
Retrospection can be immediate (e.g., within, say,   an
hour of the event) or delayed (a few hours, days,   or
even weeks after the event). It appears that the   bulk
of the forgetting occurs right after the mental   event.
Thus, data from immediate retrospection may only   be
somewhat more complete than data from delayed retrospec
tion.[4]

The term "self-revelation" is introduced here   to
refer to a learner's report that is neither a description
of general behaviors, nor based on inspection of specif
ic ones. Rather it consists of "think-aloud" stream-of
-consciousness disclosure of thought processes · while
the information is being attended to.[5] The data are ba-
sically unedited and unanalyzed.

Any given report may have different types of data
in it. For example, data from self-report studies ·may
include learners' retrospections about specific reading
behaviors, just as data from retrospective studies   can
include generalized pronouncements, extendig beyond the
observation of a given event. Furthermore, it is   some-
times difficult to establish whether respondents are ac
tually *thinking aloud* - without analysis - or   whether
they are instead *observing*- that behavior, whether   in-
trospectively or retrospectively. For example, for   the
sentence, "Nuclei contributing to the zygote are trans-
ferred between two cells without the information of ob-
viously specialized gametes", verbal report data   could

look like this:

> Let me see. "Nuclei contributing to the zygote..."
> What is a 'zygote'? I'll read on. O.K. The nuclei
> contributing to it are transferred between   two
> cells. Oh, yeah. I know about this. A zygote is a
> kind of a cell. In this case I used   contextual
> clues to guess the vocabulary word I wasn't sure of.

Most of this report contains think-aloud data, but   at
the end the reader is self-observing - by analyzing the
process of finding the meaning for the unknown word.

Reading studies using mentalistic measures

In the last several years, student theses and semi
nar papers at the Hebrew University have investigated a
number of issues related to the process of reading, em-
ploying mentalistic measures. These studies will be not
ed here as illustrious of the ways that verbal   report
techniques can be utilized in the area of reading   com-
prehension. The studies have involved four major   areas
of investigation: (1) developing a taxonomy for reading
strategies, (2) checking the appropriateness of mental-
istic measures for different populations, (3) determin-
ing similarities between first-language and foreign-lan
guage reading, and (4) describing the taking of reading
comprehension tests.

A taxonomy for reading strategies

In an in-depth study of ten high-school readers of
Hebrew native-language and English foreign-language, Sa
rig (1985; in press) identified a number of strategies,
and organized them into four types: technical-aid moves,
clarification and simplification moves, coherence-detect
ing moves, and monitoring moves (see figure 1). "Tech-

nical -aid moves" refer to the types of reading acts un
dertaken to facilitate higher-level moves (e.g., skim-
ming for the purpose of determining the macro-frame of
the text) and the types of notes that are taken while
reading."Clarification and simplification moves" refer
to semantic-decoding moves, involving a paraphrase of
the text for the purpose of simplifying the syntax, the
vocabulary, the ideas, or the rhetorical functions. "Co
herence-detecting moves refer to efforts on readers'
part to use textual or extra-textual clues to make the
text meaningful - e.g., through the textual and content
schemata, the rhetorical functions displayed in the
text, and the ideas and views expressed."Monitoring mo-
ves" refer to conscious strategies for checking on the
reading process as it takes place - e.g., awareness of
the task being performed, identification of misunder-
standing and incompatibility of formerly interpreted mate
rial, awareness of other failures in comprehension, and
awareness of resources for remedy and likelihood of suc
cess.

A taxonomy of this kind provides an effective
means for classifying the large array of strategies
that emerge from protocol analysis. It also provides a hier-
archy from more basic, psycomotor strategies to the
higher-level ones, and even suggests how different
types of moves complement and interact with one another.
For example, let us say that a reader jumps around
while reading a text. At the technical-aid level, the
occurrence would be analyzed simply in terms of the phys
ical jump from one place in a text to another. At the
coherence-detecting level, a rationale may be offered
as to why this jump took place: for example,whereas the
reader was aware that the textual schemata called for an
example at that point in the text, s/he did not feel a
need to read that example, but preferred to locate the
next main proposition. At the monitoring level, the fo-
cus would be on the extent to which the jump was inten

tional, i.e., attended to.Unidimensional lists that sim
ply indicate that the reader has jumped from one place
to another in the text are not fully describing   the
move.

Sarig's taxonomy has also proved useful to   other
researchers. Zupnik (1985a), for example, conducted   an
in-depth study of two intermediate-level EFL readers, a
strong and a weak one, and found the Sarig taxonomy an ef
fective tool in comparing the types of moves   employed
by the two readers. In her study, the weak reader   used
more moves and a larger variety of moves than   the
strong reader, but with less successful results,   which
seemed to refute Olshavsky's (1976/77) findings   that
the strong reader uses more strategies than the   weak
one. The explanation appeared when analyzing the   types
of moves employed. The poorer reader was involved most-
ly in clarification and siplification moves (e.g.,   the
identification and analysis of specific   vocabulary
items), while the stronger reader was focusing more   on
monitoring moves (e.g., a critical analysis of   the
questions asked, self evaluation of reading   success,
awareness of lack of comprehension). Also, most of   the
weak reader's moves had a deterring effect on comprehen
sion whereas almost all of the strong reader's   moves
were comprehension-promoting.

The appropriateness of mentalistic measures for differ-
ent populations

A research question that comes up repeatedly   is
that of whether verbal report measures are   appropriate
for, say, children or adults without formal   education.
Several of the studies recently conducted in   Israel
dealt with the issue of different populations. The   re-
sults have tended to suggest that mentalistic   measures
have a potential application to a broader   population
than had been predicted by the researchers at the   out-
set of the studies.

set of the studies.

With respect to young respondents, for example, a study by Levy and Weizman (1984) with twenty-four second - and third-grade readers (twelve strong and twelve weak in reading) demonstrated that these young readers were quite capable of explaining how they arrived at answers on a Hebrew native-language rational-deletion cloze test. For example, a weak reader, Inbal, was asked how she arrived at the following close completion (translated here into English): "All the flowers will choose the color they would like to be and we won't fight and we'll live in *punches*". (The word 'peace' was expected.) Using retrospective self-observation, Inbal reported using the word 'punches' "since it was not nice to hit the others and get hit because people get hurt that way". In her reading of the sentence, she had extended the negative to the second part of the phrase by mistake, and thus selected a word like 'punches'. Her verbal report helped to clarify for the researcher that she had understood the thrust of the text but not the fact that the coordinate clause had both a negative and an affirmative element in it.

A strong reader, Guy, was asked why he supplied "peace" for the same item on the cloze test. His reply was as follows: "If the anemones argued over what color they would choose to be, then 'we won't fight' shows that the continuation is that they will live in peace".

Based on the successful results of this study, Weizman (1985) did a follow-up study with five second-grade readers, each representig a different level of reading proficiency. In this study, the students were given training in the use of reading strategies. She once again obtained informative verbal report data, which in this case established that the more proficient readers benefited from the training while the less proficient readers did not. The more proficient readers were also more likely to use a rich variety of strate-

gies in a systematic way. She concluded that the train-
ing was not appropriate for the weaker readers.

With the desire to improve on the training aspect,
Weizman (1986) undertook a third study, this time with
135 third- and sixth-grade pupils, involving training
and the use of control groups. The study also includes
in-depth verbal reports from a small subsample of the
respondents. While the results are currently being writ
ten up, the preliminary findings indicate that those
students who underwent the training produced higher
reading scores than those who did not. The mentalistic
studies contributed considerably to providing Weizman
with the insights necessary to plan and execute her
most recent study.

Another group considered an unlikely source of ver
bal report data on reading were women in the *Tehila* Pro
gram, a special program for adult study in Israel.These
women had immigrated to Israel from North African coun-
tries in the 1960's, were from 40 to 60 years in age,
had limited formal schooling, and worked for the most
part in menial jobs. Two researchers, Barak and Barak
(1985), chose to investigate, among other things, the
abilities of these women to make use of titles in read-
ing, to find the central idea, and to skim. The women
were asked to provide retrospective self-observation
and self-report data. To the surprise of the research-
ers, the women were able to articulate their level of
awareness of strategy use quite successfully.The follow
ing is an excerpt from an interview with Esther, 60
years in age and a weak reader:

Investigator: What do you do when you don't know
something in the story?
Esther: When I don't understand, I go back and
read the story several times. Just one thing -I do
forget a little even when I read it a second time.
I don't know whether to read aloud or silently. I

don't know what's good for me. (Translated   from
Hebrew).

This excerpt reflects self-report data in that it does
not refer to any single occurrence of reading behavior,
but is rather a statement of more general behavior. The
reader's dilemma about whether to read aloud or not in-
dicates a genuine awareness of strategic options, even
if the "correct" choice is not clear to her.

The following is an excerpt from an interview with
a more proficient reader, Zamira:

Investigator: How do you handle problems   while
reading?
Zamira: I use a dictionary and ask people. I never
skip a sentence or word. Everything is important.I
read word for word all the time and return to the
beginnig most of the time if I don't understand. I
don't get bored or give up. (Translation from He-
brew).

This is also an example of self-report data. The   re-
searchers found that Zamira did not skim at all. Whereas
word-for-word reading may be considered a comprehension
-deterring strategy at times - particularly if there is
much to read and the material is redundant- it   would
appear that it was a comprehension-promoting   strategy
for Zamira, given her success at reading compared   to
her peers in the *Tehila* Program.

Determining similarities between first and foreign-lan-
guage reading

In recent years there has been considerable inter-
est in whether reading in a second or foreign language
is like that in the first (see Alderson 1984). The use
of mentalistic techniques provides yet another   avenue

for investigating the comparative handling of text   by
the same reader across languages. In a   mentalistic
study of two readers of Hebrew as a first language   and
French as a foreign language, Reuven (50) and   Shimon
(44), Nevo (1985) sorted the reading strategies obtain-
ed through self-revelation (think-aloud) and self-obser
vation into first-language-only, foreign-language-only,
and common strategies.

     Among other things, Nevo found that both   readers
performed grammatical analysis only in the foreign lan-
guage, as might well be expected. Furthermore, the pro-
tocols showed the respondents to have only one strategy
each that they used exclusively for first language read
ing. In the case of Reuven, the strategy involved ask-
ing himself questions about the author's intentions   as
he read along (a coherence-detecting move, according to
Sarig, in press). Nevo suggested that this strategy was
not employed in foreign language reading because   the
reader was too engaged to lower-level analysis. In   the
case of Shimon, the strategy unique to   first-language
reading was that of pronouncing aloud unfamiliar   words
and expressions as they were encountered in the text.
The researcher was surprised to find this   strategy
among those used in word analysis in the first-language
since she expected that the adult reader would no   lon-
ger indulge in oral recoding (i.e., symbol-sound analy-
sis). Nevo concluded from this case study that success-
ful reading depended both on reading ability and on lan
guage ability.

     Perhaps one of the most extensive mentalistic stud
ies of reading yet to appear is that recently completed
by Sarig (1985). As part of a study of Hebrew   native-
-language and English foreign-language reading   among
140 college-bound high school seniors in Israel, Sarig
collected lengthy verbal report protocols from   a sub-
sample of ten students representing three levels of pro
ficiency. The Hebrew and the English texts were equated

for difficulty by means of a scale of pragmatic, textual, and linguistic variables assessed by expert readers; a discourse cloze; and a comparative rhetorical analysis between the texts. The respondents were trained in how to provide verbal report data: they received a sheet with examples of mentalistic data, were given a demonstration of think-aloud and introspective techniques by the researcher, and then practiced verbalizing actively with the researcher supervising and giving support (Sarig, in press).

The major contribution of this study to the comparison of first and foreign-language reading was the formulation of the four types of reading moves mentioned above (see figure 1). Another contribution was the finding that readers differ considerably in the way that they tackle a high-level reading task. Sarig's research provided various insights regarding similarities between first- and foreign-language reading. With respect to combinations of strategies, moves in the two languages correlated highly for each of the ten readers. Eight of the ten readers transferred their first-language reading style to reading in the foreign language. Of the two who did not, one was an intermediate reader and the other a poor reader in the foreign language. Sarig interpreted these findings as indicating that ability to transfer reading skills from first to foreign language is not dependent on foreign-language proficiency, but rather is an individual cognitive trait. Likewise, she found that successful transfer of strategies to the foreign language did not necessarily promote comprehension. Both weak and strong readers were characterized by transfer of moves that promoted and deterred comprehension, and in almost all cases the readers differed from one another with regard to the extent of transfer and the degree to which it promoted comprehesion.

Sarig also found that differences across individuals characterized both first- and foreign-language

reading.There were found to be four dimensions   along
which individuals differed in their choice of   strate-
gies: (1) the unique combination of strategies, (2) the
subtask that contributed to success in reading, (3) the
frequency of the use of each strategy, and (4) the ex-
tent of transfer and whether it had positive and nega-
tive effects.

There was only one noticeable area where a   given
reader's strategies were found to differ across langua-
ges. With respect to clarification and   simplification
moves, especially the "propositional-decoding"   moves,
there was a low correlation between comprehension- pro-
moting moves in first- and foreign-language. The expla-
nation that the researcher gave was that this stage of
reading strategy is the most language-specific.In other
words, it is easier to identify propositions or   basic
ideas in a first-language than in a foreign language.

Whereas a "short-circuit hypothesis" has been pos-
ited stipulating that readers will not transfer   their
reading skills to the second language if their language
proficiency in that language has not reached a   certain
threshold level (Clarke 1979), Sarig's findings   have
suggested to her a "compensation hypothesis" - namely,
that when readers lack adequate second-language   profi-
ciency, they will rely on first-language   strategies
more than they do in their first language.This reliance
is intended to compensate in part for lack of   foreign-
language proficiency. This hypothesis is in line   with
the interactive compensatory model of reading(Stanovich
1980) and with the empirical findings of Perkins (1983)
and Haynes (1983).

Describing the taking of reading comprehension tests

As noted at the outset of this paper, the   tests
that are relied upon to indicate the   comprehension
level of readers have been found to have their   limita-

tions, given the numerous techniques that readers have
developed for obtaining correct answers on such   tests
without fully or even partially understanding the text.
Mentalistic measures have been used to help. determine
how respondents actually take reading   comprehension
tests as opposed to what they may be expected to be do-
ing. Recent Hebrew University student seminar   papers
have provided innovations in two areas of investigation
-in the use of native-language responses to foreign lan
guage passages and in the use of a response-strategy check-
list used after each response. Results from these   two
areas will now be   considered.

In light of a suggestion in the research   litera-
ture that foreign-language reading comprehension   test
formats include the use of first-language   responses
(Laufer 1983, Shohamy 1984), Zupnik   (1985a, 1985b)
planned two studies to investigate the feasibility   of
such a suggestion. Although the first study did not in-
clude mentalistic data, it provided an empirical   basis
upon which to interpret the mentalistic data   collected
in the second study. In her first study, she had twenty
Hebrew-speaking intermediate English-foreign-   language
students (in their first year at the university)perform
two tasks on an English text.

In the first task, the students were asked to read
the text and were asked five questions in English,   two
involving a reason, a relationship, and a process   re-
spectively. In the first task they were to indicate the
precise line(s) in the English text that provided an an
swer to the question. The responses were collected   and
then the respondents were asked the same   questions
again, but this time they were to provide open-ended an
swers for the questions in Hebrew - first in   rough
draft, then in a revised version. Finding the   relevant
line of the text in English was intended to   reflect
those types of questions that can be answered by   quot-
ing from the text, thus encouraging superficial reading

(Zupnik 1985b :5). The first language responses were <u>ex</u> pected to demand a deeper comprehension of the text.

The results showed first-language responses to reflect a lower level of comprehension than the foreign--language responses (42% average correct on the Hebrew version vs. 59% on the English version). Also, although the correlation between performance on the two forms was significant (p = .05), it was low (r = .45). The <u>re</u> searcher concluded that the two tests were in part testing different things. She pointed out that in reading a foreign-language text, it is possible to recognize that x causes y without understanding what y means. She noted that definitions were particularly easy to identify superficially and harder to explain in the native language. The item discrimination results indicated that the better respondents did better both on "locating abilities" (e.g., skimming and scanning), as called for in the English-language responses, and on reading in depth, as called for in the Hebrew-language responses. The <u>bet</u> ter respondents were also more likely to paraphrase the relevant material from the text when responding in their first-language rather than translating word- forword (85% of respondents from the better students, 57% of responses from the weaker students).

The companion study using mentalistic measures was conducted with two respondents, a strong and a weak reader respectively, engaged in the same tasks as described above (Zupnik 1985a). They were both trained to produce think-aloud data and were then asked to provide such data regarding both language tasks before answering the questions in writing. The poor reader was found to make four times as many moves on the English response task (using Sarig's taxonomy; Sarig in press) than did the strong reader. Both readers made a similar number of moves on the Hebrew response task. As to the type of reading moves or strategies, it was found that the better reader used monitoring strategies most of all in both languages, while the poorer reader re-

lied mostly on clarification and simplification strate-
gies, with very limited use of monitoring   strategies.
Furthermore, most of the moves of the stronger   reader were
comprehension-promoting, while those of the poorer read
er were often comprehension-deterring. Both of   these
studies were seen to confirm the hypothesis that   quot-
ing rhetorically-focused foreign-language segments from
text encourages more superficial reading than answering
in the first language.

     The second piece of innovative research on   test
taking dealt with the refining of a research methodolo-
gy for tapping test-taking strategies. The issue under
study was whether it is possible to collect introspec-
tive and retrospective data from students just   after
they have answered each item on a test. The   approaches
reported on in previous work have involved at most a re
quest of respondents after they have finished a subtest
or group of items that they reflect back as to the stra
tegies that they used in arriving at answers to   those
items (see Cohen 1984b). In an effort to provide immedi
ate verbal report data, Nevo (1985) designed a test for
mat that would allow for immediate feedback after   each
item. She developed a response-strategy checklist,based
on the test-taking strategies that have been described
in the literature and on her intuitions as to   strate-
gies respondents were likely to select. A pilot   study
had shown that it was difficult to obtain useful feed-
back on an item-by-item basis without a checklist   to
jog the memory as to possible strategies.

     Nevo's checklist included fifteen strategies, each
appearing with a brief description and a label meant to
promote rapid processing of the checklist (see figure
2). She administered a multiple-choice reading compre-
hension test in Hebrew first-language and French   for-
eign-language to forty-two 10th graders, and requested
that they indicate for each of the ten questions   on
each test, the strategy that was most instrumental   in
their arriving at an answer as well as that which was

the second most instrumental. The responses were   kept
anonymous so as to encourage the students to   report
exactly what they did, rather than what they   thought
they were supposed to report.

It was found that students were able to record the
two strategies that were most instrumental in obtaining
each answer. The study indicated that the   respondents
transferred test-taking strategies from first   language
to foreign language. The researcher also   identified
whether the selected strategies aided in choosing   the
correct answer. The selection of strategies that   did
not promote choice of the correct answer was more prev-
alent in the foreign-language test than in the   first-
language version. The main finding in this study   was
that it was possible to obtain feedback from   respon-
dents on their strategy use after each item on a   test
if a checklist was provided for easy processing.Further
more, the respondents reported benefiting greatly from
the opportunity to become aware of how they take   read-
ing tests. They reported being basically unaware   of
their strategies prior to the study.

Conclusions

As more research is conducted on the processes in-
volved in reading comprehension, there is   increasing
clarity as to the cognitive strategies that readers use.
As is often the case in research, more recent   findings
would suggest that some of the early   pronouncements
were simplistic. For example, we now see that there are
not necessarily inherently good and bad strategies, but
rather a series of strategies that may or may not   pro-
mote comprehension, depending on the reader, the   text,
the context, and the interaction of all of these.   The
important role that mentalistic measures have in   this
research effort is to bring to the attention of readers
their configuration of strategy use for any given text.

Such strategies are within the realm of conscious aware
ness but are usually not attended to.

This paper has illustrated some of the ways   that
verbal report tasks can be used to obtain data on the read
ing process and has presented some of the findings   as
well. We have seen that mentalistic measures have help-
ed to provide ample enough data in order to develop   a
taxonomy for reading strategies - one that can help the
researcher interpret what at first appears like an end-
less array of reading strategy data. We have also   seen
that mentalistic measures can be used with various popu
lations, from young elementary-school pupils to   adults
with limited formal schooling. Thirdly, we have   seen
how verbal report techniques have helped to shed   light
on the issue of similarity between first- and   foreign-
language reading. We saw that in many ways the   strate-
gies or moves that a reader employs in both   languages
are the same because the reading skills are transferred
over from language to the other. We also identified in-
stances where such transfer of skills does not   take
place. Finally, in describing the research on the   tak-
ing of reading comprehension tests, we noted that   stu-
dents may indeed avoid indulging in the very   reading
comprehension activities the examiner may be wishing to
assess. Verbal report data helped to reveal that a dif-
ference in response format may change the findings, per
haps even dramatically.

Clearly there is still much work to be done in the
area of verbal reports on the processes involved in read
ing comprehension. The important point is that a technology   exists
which has much potential. The challenge for researchers is to   tap
that potential effectively

NOTES

1. Revised version of a paper presented at the 20th An-
   nual TESOL Convention, Anaheim, California, March 3-
   7, 1986.
2. A recent study of fourteen low-level university   ESL

readers found that results on miscue analysis corre-
lated significantly with performance on cloze items
testing for content (DeVine 1986). However, the valid
ity of cloze as a measure of connected discourse has
been called into question (Alderson 1983, Klein-Bra-
ley 1981, Markham 1985).

3. Ericson and Simon (1980) proposed a model for ver-
balization processes that is very similar to . this
one developed by Cohen and Hosenfeld (1981),   with
slight variations in terminology. They   refer   to
"think-aloud probing", and to "concurrent" and "re-
trospective verbalizations", rather than to "intros-
pective" and "retrospective self-observation", as in
this paper. In their more recent work (Ericsson and
Simon 1984), they also distinguish "talking   aloud"
(i.e., directly into vocalization) from   "thinking
aloud" (i.e., from thinking to verbal encoding   to
vocalization).

4. One study had two groups of students retrospect about
test items that they had taken - one group (N = 18)
within 6 hours of having taken the test and one group
(N = 23) three days later. In the first group, the
first student started being interviewed 30   minutes
after taking the test, the latest student about five
hours afterwards. The investigator   noted few obser-
vable differences in the report data, other than   a
few more memory lapses among students in the group do
ing more delayed retrospection (Larson 1981).

5. Mann (1982) describes think-aloud data as that pro-
duced when the subject "externalizes the contents of
the mind while doing something". Accordingly, an al-
ternative to "self-revelation" could be "self-exter-
nalization".

APPENDIX

Figure 1

Reading move types and comprehension-promoting examples
(From Sarig, in press)

Technical-aid moves

1. Marking and copying key elements in the text.
2. Differential marking for difference purposes.
3. Writing oral paragraph summaries in the margin.
4. Using the glossary.
5. Skimming.
6. Scanning.
7. Jumping around.
8. Using notes for higher-level reading moves.
9. Breaking/expanding the decoding unit.
10. Numbering propositions according to their   importance.
11. Using captions.

Clarification and simplification moves

1. Raising the redundancy level using syntactic simpli
    fication.
2. Decoding the meanings of words/groups of words   in
    context through synonyms/circumlocution.
3. Ideational simplification through   propositional
    analysis and through raising the level of redundan-
    cy.
4. Paraphrase of the rethorical function (e.g.,"He giv
    es us an example now.").
5. Paraphrase of an indirect question.
6. Paraphrase of an implication (e.g., "He says...This
    means that...").
7. Paraphrase through concretization (e.g.,   "It's
    like...").
8. Paraphrase by means of reasoning (e.g., "If...then,
    and if...then, but on the other hand...").

Coherence-detecting moves

1. Identification of the macro-frame for the text.
2. Use of prior extra-textual content schemata.
3. Identification of people in the text;relating views
    /actions attributed to them.
4. Identification of key information in the text.
5. Reliance on textual schemata norms to make predic-
    tions about the text development (e.g., "This   is
    most likely an example now so I'll skip it.").
6. Cumulative decoding of text meaning.
7. Identification of overt and covert cohesive markers;
    identification of covert coherence ties.
8. Identification of overall textual schema (e.g., "I
    get it. He shows what's wrong, then what should be
    done, and finally, how.").
9. Relying on the overt purpose of the text identified
    earlier.
10. Use of a macro-frame as a starting point in an syn-
    thesis task.
11. Identification of the focus of the text (e.g.,"This
    is actually the most important thing here.").
12. Reproduction of the logical development of ideas in
    the text.

Monitoring moves

1. Identification of misunderstanding and incompatibil
    ity of formerly interpreted material with newly in-
    terpreted material (e.g., "What's going on here?").
2. Conscious organizing of task performance   (e.g.,
    "First I'll read the whole text through... Next...
    Then...").
3. Conscious change of planning and carrying out   of
    tasks.
4. Controlled and conscious "hold" moves (e.g., "I'll
    get back to this later, after I read the example.").
5. Deserting a "hopeless" segment of text (e.g., "I'll
    just leave that be. I won't be able to   understand

it anyway, so I don't want to lose any more time on
it.").

6. Flexibility of reading rate (in relation to   level
   of difficulty of the decoding unit).

7. Slowing down and using a sing-song intonation   to
   facilitate comprehension.

8. Correction of a mistake in reading.

9. Ongoing self-evaluation.

10. Self-directed dialog, self-questioning.

11. Controlled skipping.

12. Repeated reading of the same decoding unit.

13. Repeated skimming or scanning.

Figure 2

Strategies for answering multiple-choice reading compre
        hension questions (From Nevo 1985)

1. *Background knowledge:* general knowledge outside the
   text. :

2. *Guessing:* guessing without any particular consider-
   ations.

3. *Returning to the passage:* returning to the text   to
   look for the correct answer, after reading   the
   questions and multiple choice alternatives.

4. *Chronological order:* looking for the answer in chro
   nological order in the passage.

5. *Clues in the text:* locating the area in the   text
   that the questions referred to and then looking for
   clues to the answer in that context.

6. *Ceasing search at plausible choice:* reading the al-
   ternative choices until reaching one   that   was
   thought to be correct. Not continuing to read   the
   rest of the choices.

7. *Process of elimination:* selecting an   alterantive
   not because it was thought to be correct but   be-
   cause the others did not seem reasonable,   seemed

similar, or were not understandable.

8. *Choosing the exception:* suspecting a choice to   be the correct answer because it constituted an exception or had something different about it.

9. *Length:* being drawn to an alternative because   it was longer/shorter.

10. *Location:* being influenced by the location of   the alternatiwe within the set of alternatives.

11. *Common word:* choosing an alternative because it had in it a word that was common – that was heard   all the time.

12. *Key word:* arriving at an alternative because it had a word that appeared to be a key word.

13. *Matching the stem with an alternative:* selecting an alternative because it had in it a word/words   that appeared the item stem as well.

14. *Association:* selecting the alternative because   it had a word in it that evoked an association with   a word in the first language or in another language.

15. *Matching the question with the text:* selecting an al_ ternative because it had a word/words that also appeared in the text, because it had words similar in sound, meaning, or belonged to the same word family, or because it just seemed to be related.

16. *Other strategy*

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