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1 The Input Hypothesis

The purpose of this chapter is to discuss and review the evidence supporting the Input Hypothesis. In the first section, I review the theoretical framework in which the Input Hypothesis is embedded, five hypotheses that attempt to provide the foundation of a theory of second-language acquisition. We then briefly review the published evidence to date for the Input Hypothesis.

The Input Hypothesis and second-language acquisition theory

The Input Hypothesis is the central part of an overall theory of second-language acquisition that consists of five hypotheses.

FIVE HYPOTHESES

1. The Acquisition-Learning Hypothesis

There are two independent ways of developing ability in second languages. 'Acquisition' is a subconscious process identical in all important ways to the process children utilize in acquiring their first language, while 'learning' is a conscious process that results in 'knowing about' language.

2. The Natural Order Hypothesis

To my knowledge, this hypothesis was first proposed for second-language acquisition by Corder (1967). It states that we acquire the rules of language in a predictable order, some rules tending to come early and others late. The order does not appear to be determined solely by formal simplicity and there is evidence that it is independent of the order in which rules are taught in language classes[1].

3. The Monitor Hypothesis

This hypothesis states how acquisition and learning are used in production. Our ability to produce utterances in another language comes from our acquired competence, from our subconscious knowledge. Learn-

ing, conscious knowledge, serves only as an editor, or Monitor. We appeal to learning to make corrections, to change the output of the acquired system before we speak or write (or sometimes after we speak or write, as in self-correction). I have hypothesized that two conditions need to be met in order to use the Monitor: the performer must be consciously concerned about correctness; and he or she must know the rule. Both these conditions are difficult to meet.

While focusing on form may result in somewhat more grammatical accuracy [2], it does take more time. In a recent study using adult subjects, it was reported that focusing on form took about 30 per cent longer and resulted in about 14 per cent less information transmitted (Hulstijn and Hulstijn 1984). This may seriously disrupt communication in conversational situations[3,4].

4. The Input Hypothesis

The Input Hypothesis claims that humans acquire language in only one way — by understanding messages, or by receiving 'comprehensible input'. We progress along the natural order (hypothesis 2) by understanding input that contains structures at our next 'stage' — structures that are a bit beyond our current level of competence. (We move from i, our current level, to $i + 1$, the next level along the natural order, by understanding input containing $i + 1$; this terminology, adequate for now, is expanded in Krashen 1983.) We are able to understand language containing unacquired grammar with the help of context, which includes extra-linguistic information, our knowledge of the world, and previously acquired linguistic competence. The caretaker provides extra-linguistic context by limiting speech to the child to the 'here and now'. The beginning-language teacher provides context via visual aids (pictures and objects) and discussion of familiar topics[5]. The Input Hypothesis has two corollaries:

(*a*) Speaking is a result of acquisition and not its cause! Speech cannot be taught directly but 'emerges' on its own as a result of building competence via comprehensible input.

(*b*) If input is understood, and there is enough of it, the necessary grammar is automatically provided. The language teacher need not attempt deliberately to teach the next structure along the natural order — it will be provided in just the right quantities and automatically reviewed if the student receives a sufficient amount of comprehensible input.

To be more precise, input is the essential environmental ingredient. The acquirer does not simply acquire what he hears — there is a significant contribution of the internal language processor (Chomsky's

Language Acquisition Device: LAD). Not all the input the acquirer hears is processed for acquisition, and the LAD itself generates possible rules according to innate procedures (e.g. 'operating principles' (Slobin 1973); see Krashen 1983 for one possible schema). Moreover, not all comprehended input reaches the LAD (see discussion of the 'affective filter', below).

(For similar versions of the Input Hypothesis, see Macnamara 1973, Kelley 1967 (cited in Dale 1976, pp. 159–60), Newmark 1981 and Winitz 1981.)

The idea that we acquire in only one way may not be fashionable in this age of individual variation. There is, after all, very good evidence that people differ in many ways, and these variations affect the acquisition of knowledge in general (e.g. the field dependence — field independence distinction, left and right cerebral hemisphere preference, differences in cognitive style). Yet there are some things we all do the same, and some functions we acquire in the same way. The visual system, for example, is structured similarly and develops similarly in everyone. Chomsky (1975) suggests that there is similar uniformity in the language faculty, and that the language acquisition device operates in fundamentally the same way in everyone.

The extensive evidence for the Input Hypothesis, reviewed below, supports Chomsky's position, and extends it to second-language acquisition. We may see individual variation 'on the surface' — different sources of comprehensible input, different strategies for obtaining input, different messages, and of course different languages — and this variation may be of practical concern. But deep down, the 'mental organ' for language (Chomsky 1975) produces one basic product, a human language, in one fundamental way[6].

5. The Affective Filter Hypothesis

Comprehensible input is necessary for acquisition, but it is not sufficient. The acquirer needs to be 'open' to the input. The 'affective filter' is a mental block that prevents acquirers from fully utilizing the comprehensible input they receive for language acquisition. When it is 'up', the acquirer may understand what he hears and reads, but the input will not reach the LAD. This occurs when the acquirer is unmotivated, lacking in self-confidence, or anxious[7], when he is 'on the defensive' (Stevick 1976), when he considers the language class to be a place where his weaknesses will be revealed. The filter is down when the acquirer is not concerned with the possibility of failure in language acquisition and when he considers himself to be a potential member of the group

speaking the target language (Smith 1982a, 1983). (For a review of research, see Krashen 1981a.)[8]

I have suggested (Krashen 1982a) that the filter is lowest when the acquirer is so involved in the message that he temporarily 'forgets' he is hearing or reading another language.

THE FUNDAMENTAL PRINCIPLE IN SECOND-LANGUAGE ACQUISITION

We can summarize the five hypotheses with a single claim: people acquire second languages only if they obtain comprehensible input and if their affective filters are low enough to allow the input 'in'. When the filter is 'down' and appropriate comprehensible input is presented (and comprehended), acquisition is inevitable. It is, in fact, unavoidable and cannot be prevented — the language 'mental organ' will function just as automatically as any other organ:

> The learner (acquirer) has no 'reason' for acquiring the language; he does not choose to learn (acquire) under normal conditions, any more than he chooses (or can fail) to organize visual space in a certain way — or, for that matter, any more than certain cells in the embryo choose (or can fail) to become an arm or the visual centers of the brain under appropriate environmental conditions. (Chomsky 1975, p. 71)

In other words, comprehensible input is the essential ingredient for second-language acquisition. All other factors thought to encourage or cause second-language acquisition work only when they contribute to comprehensible input and/or a low affective filter.

Evidence supporting the Input Hypothesis

In this section, we very briefly review previously published evidence supporting the Input Hypothesis and fundamental principle. While alternative explanations are not excluded in every case, the Input Hypothesis can account for a wide variety of phenomena.

CARETAKER SPEECH, TEACHER TALK AND FOREIGNER TALK

As argued in Krashen 1981a, the Input Hypothesis predicts that caretaker speech, the special language directed at children acquiring their first language, will be helpful for language acquisition. Caretaker speech, while 'simplified' in several ways, is intended for communication. It is intended, therefore, to be comprehensible, not meant for deliberate language teaching. As mentioned earlier, the fact that caretaker speech tends to be limited to the 'here and now' aids com-

of human talk ... they are talked about and kept in the midst of talk about topics that range over any subject ...' (p. 64). They are exposed to 'almost continuous communication' (p. 68).

'Exposure' does not necessarily entail comprehensible input. In these cases, however, extra-linguistic context is present to make the available speech the child hears more comprehensible. Ochs points out, for example, that 'the topics entertained between caregiver and child tend to focus on the immediate past (e.g. accusations and reports of misdeeds), immediate present, and immediate future (e.g. directives to carry out acts) ...' (p. 101), topics that 'characterize household talk in general and are part of a register used by familiars and intimates'. Samoan caretaker speech thus focuses on the 'here and now'; E. Andersen (personal communication) has suggested that reference to the 'here and now' may be a universal characteristic of caretaker speech.

Ochs (personal communication) also points out that caretakers in several cultures, while they do not 'simplify' speech to the child or expand the child's utterances, do provide repeated exposure to language they expect the child eventually to understand. This form of teaching is present in both linguistic and non-linguistic domains. According to Ochs, Samoans, for example, do not instruct dance by breaking it down into parts, but by performing the entire dance again and again, while the novice observes and participates, in much the same way as American teenagers pick up the latest steps. Repeated presentations of language may give the acquirer a better chance of picking out comprehensible portions, especially if a helpful extra-linguistic context is present.

Harkness also points out the importance of considering sources of input other than the mother. Other members of the family and other children can also supply comprehensible input. As Harkness notes: 'Some of the children that I observed interacted predominantly with other children, while their mothers only occasionally interjected a command or prohibition. One mother frankly told me, "I never talk with my child. I just tell him to do something and he does it. When he talks, it's with other children." Children living in this kind of social environment must learn to talk from other children as well as from their mothers or other adults' (p. 498; see also Slobin 1975, especially pp. 292–5). Since older children in mainstream cultures are known to be capable of modifying their speech to younger children (Andersen and Johnson 1973; Fillmore 1976), they may be an important source of comprehensible input in other cultures as well. Input from this source may also be important for the Samoan child; Ochs reports that as the Samoan child matures, 'the mother spends less time with the child, and a sibling caregiver is given greater caregiving responsibilities. It is often

the case that several siblings cooperatively provide care for one or even several young child(ren)' (p. 80–81; noted also by Kernan, cited in Slobin 1975, p. 292). These children, as is the case with Samoan adults, make no attempt to simplify, however (E. Ochs, personal communication).

The Input Hypothesis does not predict that 'simplified' caretaker speech is necessary for acquisition. It predicts that simplified speech will be helpful when it provides the acquirer with $i + 1$ in a context that makes the message comprehensible. What cross-cultural studies suggest is that there may be some variation across cultures with respect to how comprehensible input is presented, its source, and perhaps the amount of comprehensible input presented. There is nothing in the cross-cultural data to suggest that comprehensible input is not the essential ingredient for language acquisition. As Slobin (1975) concludes:

> Children in all cultures learn to speak according to a universal timetable ..., yet parental practices differ widely in regard to feedback and expansion. Furthermore, children in many cultures receive their primary speech input from other children. Therefore it seems that the major role of input is to provide examples of meaningful utterances in a communicative situation, leaving it to the LAD or LAS (language acquisition system) to figure out the structure of the language without explicit tuition or guidance from adult speakers. (p. 292)

Andersen and Kekelis (1983) reach similar conclusions in their study of first-language acquisition by blind children. While input directed to blind children appears to be different from that directed to sighted children, blind children also receive comprehensible input. Andersen and Kekelis report that blind children hear more imperatives, fewer declaratives, receive more requests for action, are provided with more identifications that label rather than describe, and discuss more child-centred topics than sighted children. These differences, according to Andersen and Kekelis, are caused by the children's difficulty in reading cues from their environment, and the parents' difficulty in checking the child's comprehension. Thus, parents take 'alternate routes to creating meaningful input'.

Second-language acquirers also have access to varieties of caretaker speech, as discussed in Krashen 1981a. They include 'teacher talk', the language of classroom management in second-language classes, and 'foreigner talk', the adjustments made by native speakers when talking to non-native speakers. I have claimed (Krashen 1981a) that the Input Hypothesis predicts the efficacy of these simple codes in the same way it does for caretaker speech. While not limited to the 'here and now'[12],

they attempt to provide the non-native speaker with comprehensible input; their goal is communication, not language teaching. In addition, they appear to be roughly-tuned to the level of the non-native speaker (Gaies 1977; Freed 1980; but see note 11, above).

Another code available to the second-language acquirer is the speech of other acquirers (termed 'interlanguage talk' in Krashen 1981a). Some methods encourage this kind of input, emphasizing role-playing and problem-solving activities in which students hear a great deal of each others' language. A few methods avoid it completely (see, e.g., Winitz 1980). There is no research I know of, and very little discussion, dealing with whether interlanguage talk is helpful or harmful. The Input Hypothesis predicts that it will be of some help in early stages; it is comprehensible in many cases and probably roughly-tuned, and will contain $i + 1$ for many acquirers. There may be dangers, however, when it is used exclusively and over a long period of time: errors in the input may be 'acquired' by listeners. We will return to this interesting question in Chapter 2.

THE SILENT PERIOD

The Input Hypothesis also accounts for the silent period, a phenomenon that is very noticeable in child second-language acquisition. Very typically, children in a new country, faced with a new language, are silent for a long period of time, their output being limited to a set number of memorized phrases and sentences that they hear frequently and whose meaning they do not understand completely. 'True' second-language production may not emerge for several months; a silent period of six months' duration is not unusual.

The child's reluctance to speak for the first few months of his residence in a new country is not pathological, but normal. The child, during this time, is simply building up competence by listening, via comprehensible input. His first words in the second language are not the beginning of his second-language acquisition; rather, they are the result of the comprehensible input he has received over the previous months.

As I have mentioned previously, adults are not usually allowed a silent period in language classes, a condition that makes many language students very anxious about foreign-language study. Language teachers often demand that students talk right away. I have argued (Krashen 1983, following Newmark 1966) that this insistence on early production is a cause of 'first-language influence'. We 'fall back' on first-language rules when a second-language rule is needed in production but is not

available — as Newmark phrases it, first-language influence is a result of ignorance and can be cured by acquisition.

I have described several case histories illustrating the silent period in previous publications; it may be useful to add two more. The first one has received a good deal of publicity and has, I think, been misinterpreted. Richard Rodriguez tells his own story in his recent autobiography (Rodriguez 1981). Rodriguez grew up in Sacramento, California, speaking only Spanish at home during his pre-school years. The school he attended was conducted entirely in English, and Rodriguez reports that he said nothing in class for the first six months. This greatly disturbed his teachers, who visited Rodriguez' parents and asked that they speak English at home so that Richard could learn the language. Weeks after the home language switch from Spanish to English, Rodriguez reports that he finally volunteered an answer in English in class.

Rodriguez looks upon this language switch as a crucial event in his life, the beginning of his full participation in American society and necessary for his acquisition of English. Second-language acquisition theory has a different interpretation. Richard Rodriguez experienced a typical silent period. His six months' silence was not abnormal for a non-English speaking child in an all-English situation. Moreover, the theory, together with other case histories, strongly suggests that Richard Rodriguez would soon have begun to speak even without the home language switch.

There is good evidence in Rodriguez' book in favour of this hypothesis. First of all, there is little chance that he received much comprehensible input at home. His parents' English was weak:

> After dinner each night, the family gathered to practice our English ... Laughing, we would try to define words we could not pronounce. We played with strange English sounds, often over-anglicizing our pronunciations. And we filled the smiling gaps of our sentences with familiar Spanish sounds ... (p. 21)

As Rodriguez explains, the switch to English at home simply resulted in less communication with his parents. How could this have helped his English-language development?

> ... as we children learned more and more English, we shared fewer and fewer words with our parents. Sentences needed to be spoken slowly when a child addressed his mother or father. (Often the parent wouldn't understand.) The child would need to repeat himself. (Still the parent misunderstood.) The young voice, frustrated, would end up saying 'Never mind' — the subject was closed. Dinners would be noisy with the clinking of knives and forks against dishes. My mother would smile softly between her remarks: my father at the

other end of the table would chew and chew at his food, while he stared over the heads of his children. (p. 23)

Rodriguez' success in acquiring English was probably the result of his receiving comprehensible input from two other sources, one of which he mentions in his book and the other he does not, at least, not in detail. He mentions and then describes extra tutoring 'at the end of the school day' for a year, private lessons with a very sympathetic older teacher that consisted largely of conversation and reading together. In addition, unlike many minority children today, Rodriguez lived in an English-speaking neighbourhood: the vast majority of his classmates spoke only English — very often, those who 'made it' without special programmes got their input from their English-speaking friends. Thus, both second-language acquisition theory and data provided by Rodriguez himself support the probability that Rodriguez would have succeeded quite well without giving up Spanish at home; it resulted only in estrangement from his family and did not contribute to his English-language acquisition.

A spectacular example of the silent period is Richard Boydell, described in Fourcin 1975. Boydell contributes the introduction to Fourcin's paper and tells his own story:

> Like every child, I was born without language. Unfortunately, I was also born with cerebral palsy which, in my case, means that, although my intelligence is unimpaired, I have a very severe speech defect and no use in my hands and arms. So, to start with, I acquired an understanding of language by listening to those around me. Later, thanks to my mother's tireless, patient work I began learning to read and so became familiar with written, as well as spoken, language. As my interests developed — particularly in the field of science — I read books and listened to educational programs on radio and, later, television which were at a level that was normal, or sometimes rather above, for my age. Also when people visited us ... I enjoyed listening to the conversation even though I could only play a passive role and could not take an active part in any discussion or argument. Even this may, however, have had its compensation, for I was often reminded of the rhyme:
>
> There was an old owl who lived in a tree
> And the more he heard the less said he
> And the less he said the more he heard
> Now wasn't he a wise old bird!
>
> But, even so, it was sometimes very frustrating not to be able to express my own opinion except to my parents afterward; as they were, at that time, the only people who had the patience to try to understand my speech ... (pp. 263–4)

Boydell was educated at home by his parents until, he reports, he was old enough to study on his own: 'As well as reading books and listening

to radio and television to continue my general education, I read the newspaper every day to keep in touch with current events' (p. 264).

When he was thirty, Richard Boydell was provided with a POSSUM typewriter, a foot-controlled electric typewriter that he was able to use. Only nine days after receiving the typewriter, he produced his first letter. According to Fourcin, it was 'elegantly phrased' and also made suggestions for improving the typewriter (that were eventually accepted).

The Input Hypothesis provides a clear explanation for Richard Boydell's ability suddenly to produce 'elegantly phrased' English without any significant previous production practice. Boydell had built up a great deal of competence over the years via listening and reading. He was, when very young, able to communicate enough to indicate to his parents when he understood and when he did not. As Fourcin notes, 'by the age of 4½ he could produce vocally only versions of *no* and *yes*, but his head and body movements appeared to indicate, to his mother, good speech comprehension and from that age she started systematically to teach him, using these movements as responses to spoken questions' (p. 265). After a while, his competence was high enough for him to be able to select comprehensible input from the 'mainstream'. The special typewriter allowed him to display his real competence for the first time.

AGE DIFFERENCES

In previous reports (Krashen 1982a, 1982b), I argued that the data on age differences in second-language acquisition could easily be interpreted in terms of the Input Hypothesis and the Affective Filter Hypothesis. The data indicates that while children are generally superior in second-language attainment in the long run, adults, at least initially, acquire at a faster rate. In addition, older children acquire faster than younger children do (for a review of this research, see Krashen, Long and Scarcella 1982). The explanation for this data is as follows: older acquirers progress more quickly in early stages because they obtain more comprehensible input, while younger acquirers do better in the long run because of their lower affective filters.

Older acquirers obtain more comprehensible input in several ways. Their greater experience and knowledge of the world helps make the input they hear and read more comprehensible. Also, older acquirers can participate in conversations earlier than younger acquirers can by utilizing the strategy of falling back on first-language syntactic rules, supplemented with second-language vocabulary and repaired by the Monitor. This strategy, a way of outperforming one's competence, has

serious drawbacks, but it does allow early production, early participation in conversation, and more input[13].

A third way older acquirers gain more comprehensible input is via their superior skills in conversational management. As Scarcella and Higa (1982) have shown, younger children actually receive what looks like simpler input, input with less complex grammar, more frequent vocabulary, more tied to the 'here and now', etc. Older acquirers, however, are better able to 'regulate' the input: they work harder in encouraging more language from their conversational partner, indicate more when they have not understood, and are better at keeping conversations going. (See Chapter 2 for additional discussion of the role of two-way interaction.)

Child–adult differences in ultimate attainment may be due to differences in the strength of the affective filter. I have hypothesized (Krashen 1981a) that the affective filter gains dramatically in strength at around puberty, a time considered to be a turning point for language acquisition (e.g. Seliger, Krashen and Ladefoged 1982), and may never go 'all the way down' again. While the filter may exist for the child second-language acquirer, it is rarely, in natural informal language acquisition situations, high enough to prevent native-like levels of attainment. For the adult, it rarely goes low enough to allow native-like attainment.

According to this explanation, the adult is still an 'acquirer'; the adult utilizes comprehensible input in the same way the child does — no change is posited in the language acquisition device at puberty or at any other age, nor does the language acquisition device degenerate. It also allows the possibility that 'perfect' post-puberty second-language acquirers may exist — it predicts that such individuals will have had plenty of exposure to comprehensible input, and will have very low affective filters.

THE EFFECT OF INSTRUCTION

The Input Hypothesis helps to settle another apparent contradiction in the research literature. Some studies indicate that formal instruction helps second-language acquisition, while others seem to indicate that informal environments are superior or just as good. I reviewed this research in Krashen 1982a, and concluded that it is consistent with the hypothesis that language classes help when they are the primary source of comprehensible input. This is especially true for beginners, who often find 'real world' input too complex to understand. Language classes are less helpful when (1) the students are already advanced enough to understand some input from the outside world, and (2) this

input is available to them. This explanation predicts, for example, why advanced ESL courses for international students in North American universities are not effective (Upshur 1968; Mason 1971). The students are competent enough in English to get their comprehensible input elsewhere, i.e. certain subject matter classes and in social situations[14,15].

THE EFFECT OF EXPOSURE

Several studies conclude that more exposure to a second language results in increased proficiency, while other studies show little or no relationship between exposure and proficiency. In Krashen 1982a, I review these studies and argue that in cases where 'exposure' really entails comprehensible input, as in some school situations, we see a relationship[16]. Where exposure does not entail comprehensible input, e.g. an immigrant in a situation in which he can continue to use his first language and uses the second language very little, we see a much weaker or no relationship[17,18].

LACK OF ACCESS TO COMPREHENSIBLE INPUT

Long (1983a) has reviewed the research on cases in which comprehensible input was not available to acquirers. In these cases, acquisition was severely delayed, as the Input Hypothesis would predict. Hearing children of deaf parents with little exposure to comprehensible input (only adult–adult speech on television) show severe delay but typically catch up with other children when comprehensible input is made available to them. Cases of hearing children of deaf parents who had more interactions with hearing adults do not show this kind of delay.

METHOD COMPARISON RESEARCH

Research comparing the efficacy of different language-teaching methods has revealed little difference between grammar-based and drill-based methods. The reason for this, I have claimed, is that neither kind of method provides the student with much comprehensible input.

More recent method comparison research shows that certain types of method appear to be clearly superior to both grammar-based and drill-based types. Asher's Total Physical Response method has been shown to be far better than more traditional approaches in many studies dating back to 1966 (see Asher 1982 for a review; a recent study is Wolfe and Jones 1982). Other methods that have been compared to traditional approaches and demonstrated to be significantly and clearly better are Terrell's Natural Approach (described in detail in Krashen and Terrell 1983; Voge 1981 compares Natural Approach with a version of the Direct Method) and Lozanov's Suggestopedia (investigated in Bush-

man and Madsen 1976 and Dhority 1984)[19]. These methods have one major characteristic in common: they provide a great deal of comprehensible input in the second language in the classroom and aim for a low-anxiety environment. While they do not reject grammar study entirely, it is not the main focus of the class. (For more discussion, see Krashen 1982a, Chapter 5, and Krashen and Terrell 1983.)

(Note that the theory does not predict that comprehensible-input methods will be superior to grammar-oriented methods on all counts. If discrete-point tests are used that focus exclusively on late-acquired items, we would expect 'pure' comprehensible input students to do poorly in the short run. The Natural Approach students in Voge's study did as well as comparison students on such a test, however, since a grammar component was included.)

Experiments have shown, in addition, that delaying oral production has no negative effect on developing second-language competence (Gary 1975; Postovsky 1974). When combined with an approach emphasizing comprehension, it results in better acquisition (Swaffer and Woodruff 1978), better retention (Postovsky 1981) and very positive student attitudes (Postovsky 1981; Swaffer and Woodruff 1978). (For additional discussion of comprehension approaches, see Gary and Gary 1981.)

A recent study by Elley and Mangubhai (1983) shows that comprehensible input in the written modality is quite effective. They reported that substituting pleasure reading for audio-lingual structure-based EFL lessons in 4th and 5th grade rural Fiji schools had a dramatic effect in increasing overall proficiency in English. Students in 'book flood' classes ('shared book experience' classes, in which books of interest were discussed and read to the class, and sustained silent reading classes, in which students read for pleasure each day, with no book reports or written exercises required) made far greater gains as compared to comparison students taught by the audio-lingual method in reading comprehension after one year. The 4th grade sustained silent reading and shared book experience groups made 15 months' progress, as compared to 6·5 months' progress for the audio-lingual students. In the first year, 5th grade sustained silent reading students made 9 months' progress, shared book experience 15 months' progress, and audio-lingual method only 2·5 months' progress in reading. Other tests of English showed higher mean scores for both book flood groups, which did not reach significance in every case. After the second year of the programme, book flood groups excelled in all tests of English proficiency, including reading comprehension, grammar, listening comprehension (taken only by 5th grade students), vocabulary, and

writing (taken only by 6th grade students), and outperformed comparison students on standard tests of subject matter.

IMMERSION AND SHELTERED LANGUAGE TEACHING

The tremendous success of Canadian immersion language programmes provides additional evidence for the Input Hypothesis. Immersion programmes, as have been described in many places (see, e.g. Swain and Lapkin 1982 for a recent review), are public school programmes in which majority language students study in a minority language (e.g. French in Canada, Spanish in the United States). Typically, in immersion programmes native speakers of the second language are not included in the programme (in fact, immersion students often have no interaction with native speakers of their target language other than teachers), and exposure to the second language comes primarily from the classroom teacher and materials.

While there are many types of immersion programme, they have all succeeded in encouraging very high levels of second-language proficiency. Immersion students do not usually achieve full native competence in the second language while they are in the programme; they typically have an 'accent' and make some grammatical errors when they speak. They are, nevertheless, very competent. Immersion students far outperform students in regular language programmes (core French) and approach native speakers of French on some measures after several years in immersion classes. Lambert and Tucker (1972) conclude, on the basis of their extensive research, that 'there is no question that given opportunities to use French in diverse social situations, the [immersion] children ... could become indistinguishable from native speakers of French in their oral expression, and at the same time they would profit from instruction presented in either of their languages' (p. 152).

Immersion 'works' because, like other good methods, it provides students with a great deal of comprehensible input — subject-matter material is made comprehensible to immersion students in several ways: the exclusion of native speakers helps ensure that teachers will speak at a language level comprehensible to the non-native speaker, and texts and materials are supplemented and adapted to the immersion students' level.

What immersion has taught us is that comprehensible subject-matter teaching *is* language teaching — the subject-matter class is a language class if it is made comprehensible. In fact, the subject-matter class may even be better than the language class for language acquisition. In language classes operating according to the principle of comprehensible input, teachers always face the problem of what to talk about. In

immersion, the topic is automatically provided — it is the subject matter. Moreover, since students are tested on the subject matter, not the language, a constant focus on the message and not the form is assured.

The Input Hypothesis thus asserts that it is the comprehensible input factor that is responsible for the success of immersion, not simply the fact that immersion students are exposed to a great deal of the second language. A project we recently completed at the University of Ottawa confirms this. (For details, see Edwards, Wesche, Krashen, Clement and Kruidenier (forthcoming); Wesche 1984.) In place of intermediate French and English as second-language courses, university students took their second semester of a one-year psychology course in special 'sheltered' sections taught in the second language. Native speakers of the second language were excluded and all class presentations were in the second language, as were the readings. Pre- and post-tests in language were given, but for our purposes only; grades were based on subject-matter performance alone. The entire experience consisted of less than 40 hours' exposure to the target language in class. Our sheltered students did quite well in learning psychology, matching the immersion students' success in learning subject matter. Students in the sheltered psychology course also gained in second-language proficiency, doing as well as students in well-taught regular classes in French and English that provided large quantities of comprehensible input.

Reports in the research literature on other programmes confirm that language students can gain in second-language competence via comprehensible subject-matter teaching (see especially Stern *et al.* 1976 for an examination of the effects of adding subject-matter immersion classes to regular language classes, Buch and de Bagheera 1979, who combined comprehensible subject-matter teaching with ESL teacher training, and Bye 1983, a report of a programme for limited English proficient children in California).

Immersion-style comprehensible subject-matter teaching (termed 'sheltered' classes) may turn out to be an important supplement to second-language programmes. Such classes may serve as a bridge from the language class to the mainstream (for suggestions, see Chapter 3 of this volume).

THE SUCCESS OF BILINGUAL PROGRAMMES

The Input Hypothesis also provides an explanation for the success of certain bilingual education programmes and for the failure of others. Bilingual programmes that succeed in teaching English as a second language provide solid subject-matter teaching in the first language,

together with comprehensible input in English. Solid subject-matter teaching in the first language provides the child with 'cognitive academic language proficiency' (CALP), the ability to utilize language to learn and discuss abstract ideas (Cummins 1979). This ability, Cummins argues, can be developed via any language and transfers to any other; once a person can use language 'intellectually', this ability can be utilized in any other language the person subsequently acquires.

A good education in the first language also provides the child with subject-matter information. This information, along with the child's CALP, can be of great help in making English input more comprehensible. The limited English proficient child who knows subject matter has a far better chance of understanding subject-matter instruction in English than the limited English child who is behind in subject matter. The former child will get more comprehensible input and thus more English.

Research confirms these predictions. Programmes that provide good instruction in the first language together with comprehensible input in English succeed in teaching English as well as, and often better than, all-day English programmes. (For reviews of this research, see Cummins 1981, 1983.) While they provide, in a sense, 'less' English, good bilingual programmes actually supply more comprehensible English, directly via ESL and subject-matter teaching, and indirectly but powerfully via the CALP and information supplied by subject-matter teaching in the first language.

Ineffective bilingual programmes use the first language in such a way as to block comprehensible input. This occurs when techniques such as concurrent translation are used, in which a message is conveyed to students in one language and then translated into the other. When this is done, there is no need to 'negotiate meaning'; the child does not have to listen to the message in the second language, since he knows it will be repeated in his first language, and the teacher does not have to make an effort to make the English input comprehensible. Research has confirmed this theoretical prediction (Legarreta 1979).

Properly designed immersion programmes and bilingual programmes, according to this analysis, work for the same reason — they both supply comprehensible input. Insights from both can be effectively combined — 'sheltered classes' in English to supply comprehensible input directly, and solid subject-matter teaching in the first language to supply the background information that will help make English input comprehensible. For suggestions, see Chapter 3 [20].

THE READING HYPOTHESIS

The Input Hypothesis may also apply to the acquisition of writing style. A number of research studies show a relationship between reading and

writing. Good writers, it has been found, have done more reading for their own interest and pleasure than poor writers, and programmes that get students 'hooked on books' help develop writing skills (for a review of this research, see Krashen 1984). I have hypothesized (Krashen 1978a; Krashen 1984), as has Smith (1983), that writing competence comes only from large amounts of self-motivated reading for pleasure and/or interest. It is reading that gives the writer the 'feel' for the look and texture of good writing.

In addition to studies showing that good writers have read more, there are other arguments in support of the 'reading hypothesis'. The complexity of the written language, as well as the fact that so little of it has been described, makes it unlikely that it can be taught deliberately. We are only now beginning to discover the often subtle grammatical and discourse differences between speaking and writing, and between good and poor writing. Instruction can give the student only the most obvious aspects of the written language. This is confirmed by the failure of several studies to show any clear relationship between the study of grammar and the ability to write (see, e.g., Elley *et al.* 1976; for a review, see Krashen 1984)[21].

Notes

1. See Turner 1978. In addition, purely 'informal' acquirers, those whose exposure to second language is nearly all outside of language classes, do not show a different order of acquisition from those who have had most of their second-language experience in the classroom. Fathman (1975) found this to be the case with elementary-school children, comparing children who took ESL and those who did not, and Krashen, Sferlazza, Feldman and Fathman (1976) and Pica (1983) found similar orders for adults whose exposure to English was mainly in language class and those whose primary exposure was the informal environment.

Lightbown (1983) shows that the acquisition order can be affected to some extent by 'deviant' input from form-based second-language classes (a 'distorted version of the English language'; p. 240). For example, the ESL students she studied (grades 6 and 7 in Quebec) produced an acquisition order quite close to those reported elsewhere, but showed a 'dramatic' drop in accuracy (and frequency of production) of the -ing morpheme in grade 7, along with a rise in the use of uninflected verbs. Lightbown discovered that in grade 5 these students endured extensive drill on the -ing form (p. 232) and had very little input containing this form in grade 6. Lightbown suggests that the grade 6 performance on this form (higher accuracy and frequency, accompanied by over use in inappropriate environments) was not based on true language acquisition. Rather, it was 'based on overlearning in an environment where the form occurred in isolation from others. Such rote learning may have to be overcome before a real system can be built' (p. 239).

Several scholars remain sceptical about the Natural Order Hypothesis. There is the persistent belief that it is limited to a few English morphemes (Wode 1981), and that studies that support it are few in number. Sharwood-Smith (1981), for example, notes that there are 'doubts' about the 'extent and significance' of 'universal patterns'. These comments are quite surprising, in light of the large number of studies supporting the hypothesis. To be sure, 'morpheme studies' do exist, but many other domains have been investigated in several languages, and natural orders have been found in every case.

I reviewed the morpheme studies in Krashen 1981a, showing that morpheme order is quite predictable (one can speak of an 'average' order, but some individual variation exists). This survey used ten published second-language studies (Dulay and Burt 1973; Dulay and Burt 1974; Bailey, Madden and Krashen 1974; Larsen-Freeman 1975; Krashen, Butler, Birnbaum and Robertson 1978; Krashen, Houck, Guinchi, Bode, Birnbaum and Strei 1977; Kessler and Idar 1977; Rosansky 1976; Hakuta 1974; Houck, Robertson and Krashen 1978) and one unpublished study (Holdich 1976), as well as three normal first-language studies (Brown 1973; de Villiers and de Villiers 1973; Kessler 1975), one study of delayed first-language acquisition (Curtiss, Fromkin and Krashen 1978), and one study of adult agrammatics (de Villiers 1974). The survey also found no significant cross-sectional-longitudinal differences and no significant individual differences among acquirers when a minimum of ten obligatory occasions is used for each item and the data are gathered in a 'Monitor-free' condition.

Subsequent morpheme studies confirm these claims. Natural orders for Monitor-free conditions for second-language acquirers have been reported for child second-language acquirers by Fabris (1978) and Makino (1980), and for adult subjects by Nelson (1980), Long (1981a), Christison (1979) and Kayfetz (1982). (Makino's results are particularly striking in that a natural order was found in an 'extreme' foreign-language teaching situation, EFL in Japan, on a written task (composition). This confirms the robustness of the natural order, as well as the centrality of subconscious acquisition (see below). A natural order for delayed first-language acquisition has been confirmed by Johnson and Schery (1976) and for normal first-language acquisition by James and Kahn (1982).

(Lee (1981) reported non-significant correlations among three groups of Korean children, aged 6 to 13, for the acquisition of English grammatical morphemes. This study, however, repeats some of the flaws of earlier work. His most advanced group clearly showed a ceiling effect, as is evident from an inspection of Lee's Figure 1 (p. 264), with eight out of ten functors at the 90 per cent level or better, and three at 100 per cent (Lee does not give actual data but presents only a graph). I compared the morpheme order of Lee's other two groups to the order given in Krashen 1981a, an average order calculated from the studies cited above, and found good agreement (rho = ·80, $p < ·05$ and rho = ·60, n.s (·643 required for ·05 level), n = 8). Lee's lowest group agrees well with the posited natural order except for an unusually high aux score.)

The many morpheme studies that followed Dulay and Burt's original discovery of a natural order for morphemes in English as a second language were not designed simply to confirm the Natural Order Hypothesis; their purpose was to determine the domain of the conscious grammar, used as a 'Monitor'. It was hypothesized that the appearance of a natural order for morphemes was an indication of the utilization of the subconsciously acquired system, while an

unnatural order meant the intrusion of the conscious grammar. (The latter is termed 'heavy' Monitor use in Krashen 1982a; a natural order could mean either no or 'light' Monitor use.) This promising line of research was discontinued because of the reluctance of major journals to publish additional morpheme studies; at least two morpheme studies (by other scholars) were rejected because the journal editor was 'tired of' morpheme studies and hoped researchers would turn to deeper levels of analysis. This attitude shows that we did not succeed in making our reasons for studying morphemes clear (despite the chapter title in Krashen 1981a: 'The domain of the conscious grammar'), and is responsible, it seems to me, for the impression that only a few studies exist — the majority of the recent studies are published in 'out of the way' places or in short reports sections of journals (not included in the table of contents).

The Natural Order Hypothesis holds for other structures as well. Acquirers follow similar paths of development (go through similar intermediate or transitional steps) in the acquisition of negation (for first language: Klima and Bellugi 1966; Lord 1974; for child second language: Cancino, Rosansky and Schumann 1978; Milon 1974, Wode 1981; for adult second-language acquisition, see Schumann's review summarizing several studies (Schumann 1979)). Studies have also verified similar developmental sequences leading to the acquisition of the auxiliary system, questions (see Ellis 1984, and studies reviewed in Hatch 1983), and inflections (Wode 1981).

Comprehension studies confirming the Natural Order Hypothesis include Cook 1973, d'Anglejan and Tucker 1975, Cooper, Olshtain, Tucker and Waterbury 1979, Bongaerts 1983 and Morsbach 1981.

The Natural Order Hypothesis holds for languages other than English. Snow and Hoefnagel-Hohle (1978) tested English-speaking acquirers of Dutch as a second language of different ages and reported 'very similar patterns of morphological and syntactic acquisition' (p. 1124). Hyltenstam (1977) reports a regular 'route of acquisition' for negation in Swedish as a second language, as do Meisel, Clahsen and Pienemann (1981) for the acquisition of particle-movement and inversion rules in German as a second language for speakers of Italian as a first language.

In all these studies some individual variation is found, but it is quite clear that strong tendencies exist — we can certainly speak of some rules as being early-acquired and others as being late-acquired, and of predictable stages of acquisition.

2. The gain in grammatical accuracy achieved by utilizing the conscious Monitor is modest. Studies thus far indicate that adult second-language performers can self-correct from 7 per cent to about 50 per cent of their own errors, depending on the conditions, including the background of the performer, the instructions to the performer, and the rules involved (see Krashen 1982a, Chapter 4, for a review).

3. Several other scholars have noted that it is difficult and potentially harmful to communication to direct attention to both meaning and form at the same time. Smith (1982a), for example, distinguishes 'composition' and 'transcription' in his discussion of writing, using composition to refer to developing ideas and selecting the words, while transcription refers to the physical effort of writing and the concern for correct spelling, punctuation and neatness (pp. 19–24).

may produce partially acquired forms that have not yet been firmly acquired. In addition, we would expect those who knew the rule to be able to utilize the conscious Monitor and outperform those who did not know the rule if the following conditions were met: (1) the rule is not already acquired, and (2) the performers are sufficiently focused on form. For one rule, inversion of subject and verb, overall accuracy for the non-focused on form condition for all subjects was quite high (79·3 per cent), suggesting that several subjects had already acquired the rule. Overall accuracy for the other rule, the verb-final rule for subordinate clauses, was considerably lower, and we do, in fact, see some clear signs of a greater increase in accuracy among those who knew the rule under the focus on form condition (about 15 per cent greater in the free production 'elsewhere' condition and about 4 per cent in the more restricted 'in frame' condition). These differences were not, however, statistically significant. This may be due, at least in part, to the small *n*: only eight subjects displayed conscious knowledge of the rule. Some of these eight, moreover, may already have acquired the verb-final rule. In addition, Hulstijn and Hulstijn simply asked their subjects to focus attention on grammatical form during the 'grammar' condition story-retelling task, and informed them that their responses would be scored for correctness. It may take more than this to invoke the conscious Monitor — in Krashen 1982a I hypothesize that for most subjects (certainly not language teachers and linguists!) a true discrete-point 'grammar test' may be necessary to bring out the conscious grammar. Thus, Hulstijn and Hulstijn's results can be interpreted as providing more support for the idea that Monitor use is limited.

5. Research confirms that adding extra-linguistic information can have dramatic effects on comprehensibility. Several studies have shown that when context is added, subjects' understanding of a text improves. This can take the form of a picture (Omaggio 1979; Hudson 1982; Mueller 1980; Bransford and Johnson 1972; Bialystok 1983), or of providing a title or short description (Adams 1982; Bransford and Johnson 1972). Similarly, texts on topics familiar to subjects are more comprehensible than unfamiliar texts (Johnson 1981, 1982; Ribovich 1979; Anderson *et al.* 1977). Gass and Varonis (1984) provide evidence that familiarity with the topic facilitates comprehension of non-native speech.

The effect of providing extra-linguistic information varies with the text, the reader, and the information. In some cases, adding pictures, for example, does nothing (Vernon 1955); presumably a picture would not make this paragraph any more comprehensible to most readers (see also discussion in Bialystok 1983, p. 121). Omaggio (1979), in a study using students of French as a second language, found that providing a picture helped most when it dealt with material from the beginning of the story the students read.

Adams (1982) shows how powerful extra-linguistic information can be, how it can render an incomprehensible text or message comprehensible. Here is an example from her study. The object is to figure out the meaning of the word *rouche* in the following passage:

(1) Favourable conditions are necessary in order to do this activity. That is, you have to have enough *rouche*.
(2) If there is too much *rouche*, the object might break.
(3) But if conditions are too calm, you will have problems because the *rouche*

makes the object go up.

(4) If there are obstacles, a serious problem can result because you cannot control the *rouche*.

(5) Usually the *rouche* is most favourable during the spring.

Subjects hearing such passages scored an average of 3·86 correct out of a possible 30. Subjects who were given a 'script activator', some background information, scored an average of 23·3 correct out of 30. (The background information for the passage you just read was: 'This passage is about flying a kite'.)

Simplification of input may or may not help acquisition. First, simplification does not always result in increased comprehensibility. Some studies show that simpler input means more comprehensible input; Marks, Doctorow and Wittrock (1974) found clear gains in comprehensibility of written texts when vocabulary was simplified for 6th grade children. On the other hand, studies with similar designs show either very small gains in comprehensibility (Williams 1968, using rewritten science texts for 6th graders) or no differences (Johnson 1981; adult ESL). Blau (1982), in a study of adult ESL, found that over-simplification of grammar can make a text less comprehensible by removing elements crucial to meaning.

The Input Hypothesis predicts that when simplification does help, it does so by removing excess $i + n$, rules beyond the acquirer's $i + 1$, making the input more 'noise-free' and more comprehensible. As Long (1983a) points out, over-simplification can delay acquisition by denying the acquirer $i + 1$.

6. In Chomsky's terms, what I have called 'conscious learning' is the result of a separate 'faculty of mind', outside the language mental organ, and perhaps part of the 'science-forming' capacity used for gaining other knowledge as well (Chomsky 1975, p. 24): '... language-like systems might be acquired through the exercise of other faculties of mind, though we should expect to find empirical differences in the manner of acquisition and use in this case' (Chomsky 1980, p. 28). This is precisely what is claimed: we acquire via comprehensible input, but learn via conscious rule teaching (or discovery). Moreover, the Monitor hypothesis claims that the two systems are used in very different ways.

In addition, there is only partial overlap between what can be learned and what can be acquired. We may be able to 'learn' things we cannot acquire — while the language acquisition device is constrained to acquire only certain kinds of grammatical rules, it is possible that we can consciously learn rules that violate linguistic universals (see Chomsky 1975, pp. 209–11). Of course, our inability fully to describe the native speaker's competence shows we can acquire what we cannot consciously learn. As Chomsky notes (Chomsky 1975, p. 4): 'For the conscious mind, not specially designed for the purpose, it remains a distant goal to reconstruct and comprehend what the child has done intuitively and with minimal effort.' I need only add that it remains a distant goal to reconstruct and comprehend what many second-language acquirers do intuitively.

In fact, Chomsky's distinction between 'cognize' and 'know' is quite similar, if not identical, to the acquisition-learning distinction, 'cognize' referring to tacit, subconscious knowledge and 'know' to conscious knowledge (Chomsky 1975, pp. 164–5; Chomsky 1980, pp. 70–71, 128). Second-language acquisition theory reaches similar conclusions to those Chomsky arrives at: 'In this usage,

what is "known" will be a rather ill-defined and, perhaps, a scattered and chaotic subpart of the coherent and important systems and structures that are cognized. For psychology, the important notion will be "cognize", not "learn"' (p. 165). (See also pp. 248–9, note 24, for Chomsky's recognition of the limitations of learning: '... there is no reason to believe that a person could consciously master a grammar as a guide to behavior ... there is little doubt that [rules learned from a book] could not be consciously applied, in real time, to "guide" performance.') Chomsky's insights predate my recognition of the acquisition-learning distinction but had escaped my attention until recently.

7. This is not to say that zero anxiety is best in all cases. I have suggested (Krashen 1981a, p. 30), on the basis of Chastain 1975, that low or zero anxiety may be best for acquisition, while moderate 'facilitative' anxiety may be optimal for language learning.

8. Goldin-Meadow (1982) distinguishes 'resilient' properties of language from 'fragile' properties. Resilient properties are those that can be acquired under 'degraded' or reduced input conditions, such as the meagre amount of language comprehended by deaf children of hearing parents who have not been exposed to conventional sign language, or the aural language heard by children suffering extreme deprivation and isolation (e.g. Genie, as described by Curtiss 1977). Resilient properties, according to Goldin-Meadow, include word-order production rules, 'lexical items that refer to objects, actions, and attributes' (p. 73), and recursion. Fragile properties include movement rules, auxiliary structure, inflections, and pro-forms. A very interesting hypothesis for second-language acquisition is that 'resilient' properties can be acquired regardless of the strength of the affective filter, given sufficient comprehensible input, while acquisition of the later-acquired 'fragile' properties requires a lower affective filter. It may also turn out to be the case that everyday communication requires only resilient properties; the acquisition of fragile properties marks one as a member of the group of target language speakers.

This idea is similar to several other suggestions in the literature, including Smith's (1983) hypothesis that successful acquisition requires that the acquirer consider himself a potential 'member of the club' of target language users, Schumann's (1978b) parallel between decreolization and second-language acquisition, and Gardner and Lambert's (1972) notion of integrative motivation.

9. Input factors reported to predict growth in child language acquisition and that distinguish rapid acquirers from normal acquirers appear to be those that contribute to comprehensibility. These factors include:

(1) Semantic extensions, utterances that 'pick up and elaborate, or add to, the meaning that the child has just contributed' (Barnes *et al.* 1983, p. 77). Barnes *et al.* report a significant correlation ($r = .37$; $p < .05$) between extension frequency in input and subsequent growth in M.L.U. Cross (1978) found that rapid acquirers received more extensions in their input than children acquiring at a normal rate (37 per cent as compared to 32 per cent of mothers' utterances) but the difference was not significant. Cazden (1965), in an experiment, reported that children receiving more extensions showed greater improvement than children receiving more expansions.

(2) Intelligibility. While caretaker speech is in general quite well formed (Newport, Gleitman and Gleitman 1977), Cross (1978) reported that rapid acquirers received significantly fewer unintelligible and disfluent utterances. Gleitman, Newport and Gleitman (1984) report consistently negative but statistically non-significant correlations between the amount of unintelligible speech heard and various indices of child language growth.

(3) Referentiality. Cross's rapid acquirers heard more speech referring to their own and their mothers' activities, and less speech referring to non-immediate events (35 per cent referring to immediate references for rapid acquirers as compared with 32 per cent; this difference was not, however, significant).

(4) Expansions, cases in which the caretaker repeats the child's incorrect utterance correctly. Expansions, it has been suggested, are meant as communication checks (Cross 1977), and thus may or may not be attended to. In addition, it has been shown that they do not occur in all cultures (Ochs 1982). When they do occur, and when they are attended to, they are probably comprehensible and serve as comprehensible input. They are useful to the acquirer when the items filled in or corrected by the caretaker are at the acquirer's $i + 1$. Several studies suggest that expansions are useful. Children who receive more expansions show more growth, especially in verb phrase auxiliary development (Newport *et al.* 1977; Gleitman *et al.* 1984); more rapidly developing children receive more expansions than normally developing children (Cross 1978), and one experimental study (Nelson, Carskaddon and Bonvillian 1973) found expansions to be helpful and more effective than extensions, the effect again being largely on the VP auxiliary. Cazden's finding (Cazden 1965) of no effect for the use of expansions may have been because the expansions were not attended to; in her study, every child utterance was expanded for 40-minute periods (see Cazden 1972 for discussion).

In a recent study, Hirsch-Pasek, Treiman and Schneiderman (1984) reported that mothers showed a greater tendency to repeat ill-formed utterances of their two-year-olds than well-formed utterances: 20·8 per cent of ill-formed utterances were repeated while only 12 per cent of well-formed utterances were repeated. Nearly all repetitions of ill-formed utterances included a correction of the child's error (p. 86), i.e. they were expansions. No difference was found for older children.

(5) Amount of speech. Barnes *et al.* (1983) report a significant correlation between the amount of speech directed to the child and growth in MLU ($r = \cdot 42$; $p < \cdot 05$). Correlations with other measures of development were positive but not always significant.

While this data is suggestive, the correlations are very modest. Each factor, however, may make an independent contribution to comprehensibility; when combined, they could yield a very strong effect of comprehensibility on rate of acquisition. Cross (1978), for example, combined the categories of 'extension plus expansion' and found a very significant difference ($p < \cdot 01$) between rapid and slower acquirers, the former receiving 61 per cent of their input as either extensions or expansions, while the less rapid acquirers received 49 per cent of this kind of input. In addition, there may be little room for variation for many of these factors. As mentioned earlier, caretaker speech is in general well formed,

in general focuses on the 'here and now', and contains more expansions than speech directed to fully competent speakers.

10. See Chapter 2 for discussion of the role of two-way interaction.

11. Even 'rough-tuning' may not be necessary, as long as input is comprehensible. It may be the case that acquirers are able to 'pick out' the structures they are ready to acquire ($i + 1$) from 'non-tuned' input. Gleitman, Newport and Gleitman (1984) provide interesting evidence supporting this hypothesis. In an earlier study, Newport, Gleitman and Gleitman (1977) had reported a strong correlation between the frequency of yes/no questions in the mother's input and the subsequent acquisition of verb-phrase auxiliaries (also reported in Furrow, Nelson and Benedict 1979, using a smaller data base). Newport *et al.* hypothesized that this relationship was due to the fact that yes/no questions placed the VP auxiliary in the prominent and often stressed clause-initial position. Gleitman, Newport and Gleitman re-analysed the Newport *et al.* data, and reported that the yes/no question–VP auxiliary correlation was very strong for the older children (23·9 to 24·8 months) in their sample ($r = \cdot 91$), but did not reach significance for the younger children (18·5 to 21·3 months). What is remarkable is that no differences were found in the input presented to the two groups: they received equal proportions of yes/no questions. In other words, the mothers of the younger and older children used, as a group, fairly large numbers of yes/no questions; in each case, they accounted for about 20 per cent of the major sentence types. Those mothers who used more yes/no questions with the older children stimulated significantly greater auxiliary development, however.

In terms of the theory, the auxiliary was at $i + 1$ only for the older children. For the younger children, it was beyond $i + 1$, part of $i + n$, a bit of noise that the children did not attend to but that did not render the input incomprehensible.

Gleitman *et al.* conclude that changes in the child, not in the adult, are crucial for language acquisition, a view that is very consistent with the theory. They also conclude that optimal input is rich, that it includes a wide range of data that the acquirer can utilize in hypothesis testing. I would add only that the theory predicts that the best data is that which contains maximum richness but which remains comprehensible. Such data will contain, to be sure, some $i + n$, as caretaker speech always does. (Note that caretaker speech, according to the research, is very well formed (Newport *et al.* 1977; Cross 1977). This means that it always contains a fair amount of $i + n$ in the form of late-acquired grammatical morphemes. Inclusion of these items does not impair communication, nor would deleting them aid communication in any significant way.) The acquirer, thanks to certain processing biases (e.g. the tendency to attend to stressed items, as Gleitman *et al.* suggest) or operating principles (Slobin 1973), will attend to a comprehensible portion of this $i + n$. Rich input provides the acquirer with a better sample to work with, more opportunities to hear structures he is ready to acquire.

Cross (1978) presents a similar view, on the basis of her data showing little difference in the syntactic complexity of caretaker speech to rapid acquirers and less rapid first-language acquirers. She suggests that caretaker speech '... may be only grossly sensitive to differences in the linguistic abilities of the addressee, and may not vary significantly across mothers. If this is so (and more evidence is

certainly needed), Newport's (1976) suggestion that it may have a threshold rather than a graded effect on acquisition may be correct. It may aid acquisition simply by bringing the structural complexity of the input well within reach of the child's processing capacities, further simplification then being unnecessary and redundant, and perhaps even impeding communication' (p. 208).

Syntactically-untuned but highly comprehensible input may be the optimal arrangement for language acquisition. It eliminates the need for caretakers to take deliberate aim at each acquirer's $i + 1$, and allows them to provide input for more than one acquirer at a time (the input will be useful as long as it is comprehensible; each acquirer may be getting 'practice' on a different structure). Non-tuned input also provides automatic review — the inattentive, sleepy, or unwell acquirer can 'miss' hearing his $i + 1$ on one occasion, but has numerous other chances to hear it again (Krashen 1982a, pp. 23–4).

12. There is evidence that foreigner-talk discourse utilizes somewhat more present-tense marking of verbs than native speaker–native speaker discourse; as Long notes, it is slightly more in the 'now' of the 'here and now'. Long (1981a) reported differences that did not reach significance, but subsequent comparisons did (Long 1981b).

13. Not all of this input will be comprehensible. I have observed that when second-language users 'outperform their competence' using first-language structures and second-language vocabulary, corrected by the Monitor, they can occasionally sound far more advanced than they really are. When the first-language rule coincides with an actual second-language rule, such performers may produce sentences in the second language of great complexity. This can give a listener a false impression, causing him to think that the second-language performer is much more advanced than he really is, the result being incomprehensible input.

14. Long (1983b) has reviewed the evidence I presented on the issue of instruction, and considers some additional studies. His conclusions are similar to mine: the benefits of instruction are strongest at the beginning levels. According to his interpretation, however, the effects of instruction may extend beyond the early stages of second-language acquisition.

Long's re-analysis of some of the studies I reviewed in Krashen 1982a presents additional data in favour of the generalization that instruction most benefits beginners. He notes that in Upshur's study of foreign students at the university level (Upshur 1968), the lower proficiency group had the highest gain score, even though no significant difference was found among the groups. Fathman's data (Fathman 1975) on children acquiring English in Washington public schools generally shows no additional benefit for those in ESL class, but Long points out that those at the lowest level (one year length of residence) who had ESL outperformed those without ESL (SLOPE test means were 34·2 and 28·0 respectively).

I had interpreted Hale and Budar (1970) as supporting the hypothesis that instruction was not effective for intermediate level students; their subjects with less ESL (mainstreamed) did better than those with ESL. Long notes that those in ESL happened to be lower SES; since overall educational achievement was used as part of the language measure, and since lower SES children do not do as

well in school, a serious confounding variable may be present. In addition, Long points out that the difference in favour of the mainstreamed children emerged only after the first year. Chi-square tests done by Long on Hale and Budar's data show no difference for the first year. Considering the disadvantage the ESL students were under due to their lower SES, Long argues that this result could be interpreted as showing that instruction was of benefit.

These analyses thus strengthen my generalization that language classes are useful primarily for the beginner, and are consistent with the interpretation that their value is in the comprehensible input they supply.

Long also argues that there is evidence for the value of instruction beyond the beginning stage, even though he notes that 'it is difficult to be sure' (p. 376, note 7). The studies he cites as supporting this generalization are Krashen, Seliger and Hartnett 1974, Krashen and Seliger 1976, Krashen, Jones, Zelinski and Usprich 1978 and Carroll 1967 (see his Table 7, p. 375). Contrary to Long's classification, however, the two Krashen and Seliger studies did not involve intermediates. All subjects were students in the Queens College intensive ESL programme, designed for students whose English was not strong enough to take a partial academic load. Subjects in Krashen *et al.* 1978 were enrolled at various levels in extension courses at Queens College, with large numbers in the lower levels. Carroll's subjects, as Long notes, were more advanced, achieving an FSI equivalent of 2+ on MLA listening comprehension tests; they were college foreign-language majors. The effect of instruction was quite small, however. While Carroll found that those who started language instruction in grade school did better than those who started in high school, and those who started in high school outperformed those who started in college, this relation did not hold for all languages (German majors were excepted; none started in grade school, however) and the relationship between the time study of the target language began and proficiency, while significant in several cases, was not strong; for French majors, r = −·18; for German, r = −·01; for Spanish, r = −·10 (multiple correlations). Note also that Carroll's subjects were foreign-language students, not second-language students; the theory predicts that instruction will make no additional contribution for intermediate students who have access to an acquisition rich environment. Carroll's subjects had a maximum of one year in such an acquisition rich environment — thus, for them the classroom was a major source of comprehensible input.

The data remain remarkably consistent. In a very recent study of 577 South-west Asian students ranging from 2nd grade to 10th grade in Iowa schools, Weslander and Stephany (1983) reported instruction was effective only for the lower level (BSM level 2·2 to 2·8) students in their first year; those taking more ESL did better on the BSM. For more proficient students (BSM above 3), students who received less ESL did better.

15. A potential counter-example to the generalization that instruction is of benefit mainly in situations where the classroom is the main source of comprehensible input is J. Brown (1980). As Long (1983b) points out, in this study instruction seemed to be of benefit to intermediate students who had access to comprehensible input outside the classroom. Brown compared the progress of newly-placed and continuing students in an advanced ESL class at UCLA (33C) and, consistent with the impressions of instructors, found that newly-placed students clearly outperformed continuing students on the final exam and

a cloze test, and earned significantly higher grades. Consistent with Long's interpretation are these facts: the students were 'intermediates', good enough in English to profit from regular subject-matter instruction at UCLA, and it appears to be the case that such students showed gains resulting from ESL instruction, a finding that seems to be contrary to other investigations of the effectiveness of ESL courses at this level (Mason 1971; Upshur 1968).

Other interpretations are possible, however, and are more likely. Brown (p. 117) suggests that the differences between newly-placed and continuing students may have been present earlier (no pre-test was taken) — the continuing students' inferior performance at the end of the course may have been due to a lack of progress in earlier courses, an interpretation consistent with the view that courses at this level are not very effective when other sources of input are available. (Another possibility mentioned by Brown (p. 118) is that the newly-placed students may have been 'rusty', since some time may have elapsed since they studied or used English; the placement test score might not have indicated their true ability.)

As Brown suggests, a pre-test/post-test design would help shed more light on the situation.

16. Walberg, Hase and Pinzur Rasher (1978), in a study of children acquiring English as a second language in the United States, found evidence for a 'diminishing returns' model: acquisition is quick at first and then slows down, with equal units gained in the first two months, the next five, the next year, the next two years, and the next eight years.

17. Seliger (1977) reports that ESL students who were able to obtain more input in their language classes ('high input generators') made better progress in second-language acquisition. High input generators in class were also those who tended to seek out more input outside of class.

Not all studies, however, report clear correlations between the amount of comprehensible input obtained by acquirers and their progress in second-language acquisition. Snow and Hoefnagel-Hohle (1982) measured the quantity of comprehensible input presented to English-speaking acquirers of Dutch in a school situation and related this to their gains made in Dutch over the next four to five months. Subjects had been in Holland two to eight months at the time of the taping. Snow and Hoefnagel-Hohle report low and fairly inconsistent correlations between input quantity and most of their measures. Here is a sample:

measure	*gains made over 4–5 months*
comprehension	·24
sentence repetition	−·82 ($p<·05$)
pronunciation	·31
morphology	·89 ($p<·05$)

This analysis was done on the basis of all the comprehensible input heard by the child. A separate analysis of input directed to the individual child yielded similar results.

There are several possible reasons for these results:

(1) A very small group of subjects was used (six). Moreover, rank order