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West, M. (1955). *Learning to read in a foreign language* (2nd ed.). London: Longman.

Wode, H., Rohde, A., Gassen, F., Weiss, B., Jekat, M., & Jung, P. (1992). L1, L2, L3: Continuity vs. discontinuity in lexical acquisition. In P. Arnaud & H. Bejoint (Eds.).

Yoshida, M. (1978). The acquisition of English vocabulary by a Japanese-speaking child. In E. Hatch (Ed.), *Second language acquisition.* Rowley, MA: Newbury House.

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Intake Factors and Intake Processes in Adult Language Learning

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Synthesizing theoretical and empirical insights from second language acquisition, cognitive psychology, information processing, schema theory, and parallel distributed processing, this paper proposes an interactive framework of intake processes. It identifies intake factors (Individual, Negotiation, Tactical, Affective, Knowledge, and Environmental) *and intake processes (linguistic processes of grammaticalization and language transfer, and cognitive processes of inferencing, structuring, and restructuring) and argues that these factors and processes interweave and interact in a synergic relationship, each shaping and being shaped by the other. According to this interactive framework, input can be converted into intake only if the intake factors and processes are optimally favorable and if a consistent absence of one or a combination of these constructs may result in partial learning. Pointing out that current research yields only a limited and limiting view of L2 development because of its narrow focus on individual intake factors and intake processes in isolation, this paper emphasizes the need to reframe our research agenda in order to address the synergic relationships between and within intake factors and processes.*

Introduction

It is widely recognized that there is a mismatch, both qualitative and quantitative, between the language output produced by second/foreign language (L2) learners and the language input to which they are exposed. In a seminal paper, Corder (1967) highlighted this mismatch and made an important distinction between *input* and what he called *intake*. Since then, several attempts have been made to explore the relationship between input, intake, and L2 development[1] (see,

among others, Faerch & Kasper, 1980; Krashen, 1981; Chaudron, 1985; Gass, 1988; Spolsky, 1989; van Lier, 1991). In spite of a quarter century of exploration, we have hardly reached a consensus on the fundamental characteristics of intake, let alone an understanding of the psycholinguistic processes governing it—a state of affairs that attests to the complexity of the construct we are wrestling with. Continuing the exploration, I take a critical look at the concepts of input, intake, intake factors, intake processes, and output, as they relate to adult L2 development in formal contexts, and then attempt to design what I call an interactive framework of intake processes. I do so by building on work already done, and by synthesizing theoretical and empirical insights derived from interrelated areas such as second language acquisition, cognitive psychology, schema theory, information processing, and parallel distributed processing.

Input

Input is operationally defined as oral/written data of the target language (TL) to which L2 learners are exposed through various sources, and which is recognized by them as language input. This definition posits two conditions: availability and recognizability.

The first condition is rather obvious: Input either has to be made available to learners or they have to seek it themselves. One can identify three types of input attributable to three different, but not necessarily mutually exclusive, sources that learners are likely to get/seek input from:

> (a) *interlanguage input*: the developing language of the learners themselves and their peers, with all its linguistically well-formed as well as deviant utterances;
>
> (b) *simplified input*: the syntactically, semantically, and pragmatically simplified language that teachers and other competent speakers use when they talk to L2 learners in and outside the classroom; and
>
> (c) *non-simplified input*: the language of competent speakers without any characteristic features of simplification, that is, the language generally used in the media (TV, radio, and newspapers) and also the language used by competent speakers to speak and write to one another.

Clearly, each of these three sources of input can manifest itself in various modes: spoken/written, monologic/dialogic, formal/informal, and so on.

The second condition is less obvious than the first, but equally important: Input has to be consciously or unconsciously recognized by

learners not only as language input but as something they can cope with. The language data available in the learners' environment has the potential to become usable input when the learners pay attention to it, thereby noticing the mismatch between the speech of competent speakers and their own organization of the TL (Gass, 1988; Schmidt, 1990, 1993; VanPatten, 1990; van Lier, 1991). What actually makes the learners notice and recognize a subset of language exposed to them as potential input is as yet undetermined. Schmidt (1990, 1993) suggests factors such as frequency of occurrence, perceptual salience, linguistic complexity, skill level, and task demands. One might also add factors like learner needs, wants, situations, interests, and motivation.

Intake

Unlike input, the concept of intake has not been easy to pin down. The current L2 literature is replete with varied definitions and myriad explanations for the term intake. Amidst the conceptual multiplicity, one can discern two strands of thought: one that treats intake primarily as product, and the other that treats it primarily as process.[2] Corder, who is credited with formulating the notion of intake, defines it as "what goes in and not what is *available* to go in" (1967, p. 165, his emphasis). Kimball and Palmer (1978, pp. 17-18) define intake as "input which requires students to listen for and interpret implicit meanings in ways similar to the ways they do so in informal communication." This has been echoed by Krashen, for whom "intake is simply where language acquisition comes from, that subset of linguistic input that helps the acquirer acquire language" (1981, pp. 101-102). A common thread running through these definitions is that all of them treat intake as a product, a subset of linguistic input.

There are others who prefer a process-oriented approach to intake. Faerch and Kasper (1980, p. 64), for instance, define intake as "the subset of the input which is assimilated by the IL (interlanguage) system and which the IL system accommodates to." Hatch (1983, p. 81) is in agreement when she defines intake as a subset of input which "the learner actually successfully and completely processed." Likewise, Chaudron (1985, p. 1) refers to intake as "the mediating process between the target language available to the learners as input and the learner's internalized set of L2 rules and strategies for second language development." Liceras (1985, p. 358) also opts for a process-oriented definition when she talks of cognitive capacities that intervene at the level of intake. Gass (1988, p. 206), too, sees intake "as a process of mental activity which mediates between input and grammars."

Notice that the product view identifies intake as a subset of input *before* the input is processed by learners. In other words, intake *is* input, even though it is only a part of it. The process view, however, identifies

intake as what comes *after* psycholinguistic processing. That is, intake is already part of the learner's IL system. According to the product view, intake then is *unprocessed* language input; according to the process view, it is *processed* language input. The two views can be diagrammatically represented as follows:

FIGURE 1
Input, Intake, Output: The Product View

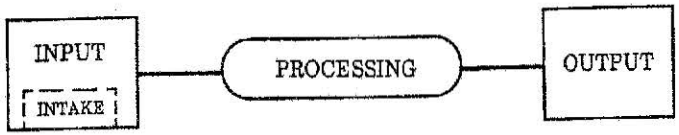
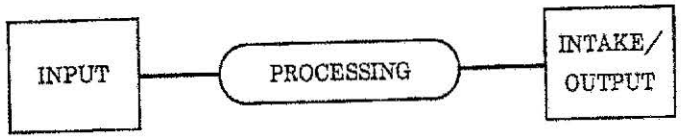


FIGURE 2
Input, Intake, Output: The Process View

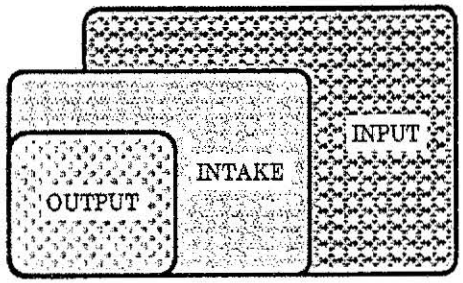


The product view of intake appears to be severely flawed. It implies that there is no need to differentiate input from intake because intake, after all, is no more than a part of input and is independent of language learning processes. The distinction between input and intake, crucial to the nature of L2 development, becomes insignificant if not irrelevant. Furthermore, without such a distinction, we will not be able to account for the fact that "input is not perceived and processed by different learners in an identical manner" (Stern, 1984, p. 393).

The process view of intake is not flawless either. First, this view suggests a simple part-whole relationship between input and intake, and between intake and output. It ignores the fact that "there are parts of a learner's grammar which go beyond the actual input, perhaps because a learner imposes regularities on the data or uses native language markedness values" (Gass, 1988, p. 199). Second, intake is not directly observable, quantifiable, or analyzable; it is a complex cluster of mental representations. What is available for empirical verification is the product of these mental representations. We have a different name for such a product; we call it output.

There is thus a need to redefine the concept of intake. It may be useful to treat intake as an abstract entity of learner language that has been fully or partially processed by learners, and fully or partially assimilated into their developing system. Such an entity is the result of as yet undetermined interaction between input and intake factors mediated by intake processes (see below). This definition suggests that intake is treated as a subset of input only to the extent that it originates from a larger body of language data called input. Features of learners' output can be traced not only to the input they are exposed to but to the dynamics of intake processes as well. Such a view accounts for the fact that the learner's developing system provides instances of grammatically deviant utterances which are not part of input. The relationship between input, intake, and output can be diagrammatically represented as:

FIGURE 3
Input, Intake, Output: A Quantitative View



The figure states that, quantitatively speaking, output is a subset of what has been internalized, which in turn is a subset of input. Further, a small portion of the learner output can go beyond the boundaries of language input. What part of input gets converted into intake appears to be determined by certain factors and processes which I call *intake factors* and *intake processes*.

Intake Factors

Intake factors refers to learner-internal and learner-external factors that are brought to bear on the process of converting a subset of input into intake. Just as scholars differ on the concept of intake, they differ widely on their choice of intake factors as well. Corder (1967, p. 165) suggests that "it is the learner who controls the input or more properly his intake." To learner control he adds "the characteristics of his language acquisition mechanism" as another factor. Corder explains further that "what elements are, in fact, processed from the data that is available is determined by what the current state of the learner's interlanguage grammar permits him to take in at that moment" (Corder, 1978, pp. 81-82). Hatch (1983, p. 80) believes that "if it (input) is held in memory long enough to be processed (or if processing breaks down and the learner asks for a new clarification), it has been taken in." Seliger (1984, p. 45) echoes the same idea: "Long-term memory and its effect on the selection of tactics is what determines when input will become intake."

Krashen (1981 and elsewhere) asserts that comprehensible input and low affective filter are the only two factors which determine intake. He is convinced that "every other factor hypothesized to relate to SLA reduces to input plus low filter" (1983, p. 141). Larsen-Freeman (1983, p. 14), too, suggests that "the key to input's becoming intake is its comprehensibility." Sharwood Smith (1985, p. 402) takes exception to these views and states that it is "particularly unreasonable to give L2 input the unique role in explanation of intake." Instead, he emphasizes the role played by crosslinguistic features in intake processing. According to Swain (1985, p. 236), comprehensible output is crucial for converting input into intake. While these scholars highlight the importance of one or two intake factors which are understandably the focus of their immediate research, Spolsky (1989)—in a comprehensive review of the L2 literature—isolates, defines, and explains no less than 74 factors (he calls them conditions) of varying importance that separately or in combination contribute to L2 development.

The diversity of definitions and interpretations found in the L2 literature is evidently a result of the varied perspectives with which researchers have approached the concept of intake and intake factors. While this multiplicity of perspectives has undoubtedly broadened our understanding of intake, the sheer range of intake factors hypothesized to influence L2 development might hinder meaningful investigation. It seems to me that we need an integrated view of the major intake factors that facilitate L2 development in order to help us make informed judgments about L2 development, and consequently about L2 pedagogy.

The task of isolating major intake factors from a plethora of factors suggested in the literature rests largely on individual perception rather than on indisputable evidence. The latter is in any case hard to come by, in spite of a quarter century of L2 research (see Larsen-Freeman & Long, 1991, and Cook, 1993 for recent reviews). My critical reading of factors that facilitate L2 development has yielded a cluster of six major factors, and two variables within each. Notice that I call these intake factors *facilitating*, not *causal*, factors. I do so because, to my knowledge, no direct causal relationship between any of the intake factors and adult L2 development has been established beyond doubt, nor, as Lamendella (personal communication) points out, would a "causalist view" be worth considering in any case, given our limited understanding of L2 development. It is, however, fairly reasonable to assume that each of these factors plays a facilitating role of varying importance. The major intake factors are:

Individual factors: Age and Anxiety

Negotiation factors: Interaction and Interpretation

Tactical factors: Learning Strategies and Communication Strategies

Affective factors: Attitudes and Motivation

Knowledge factors: Language Knowledge and Metalanguage Knowledge

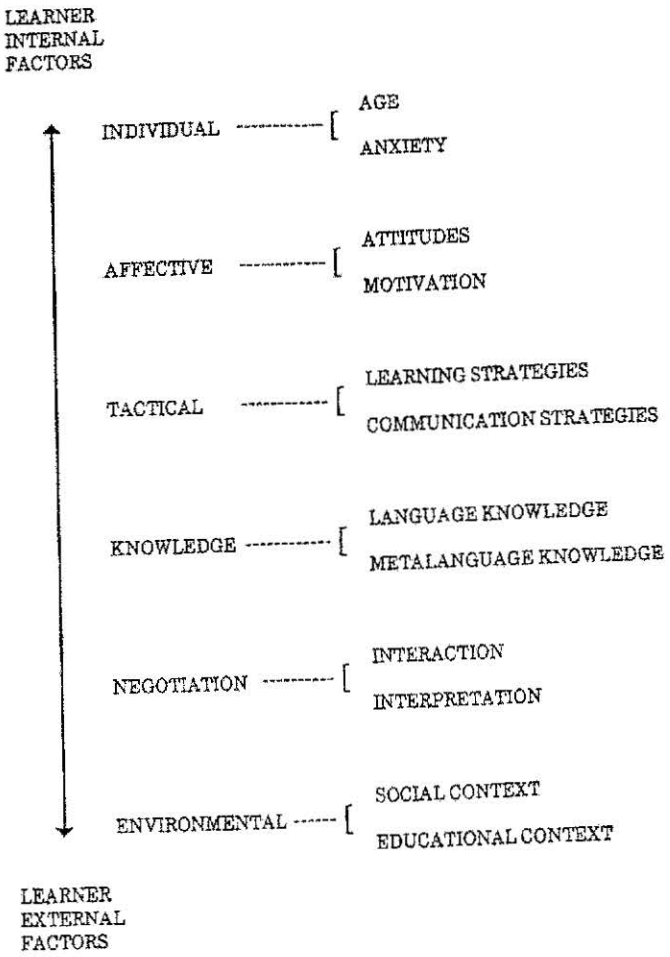
Environmental factors: Social Context and Educational Context

These factors can be classified into two broad categories: learner-internal and learner-external factors. By this categorization, I do not suggest a dichotomous relationship between the two categories; rather, I look at them as the two ends of a continuum as represented in *Figure 4*.

In the rest of this section, I briefly sketch the facilitating role played by each of these intake factors in developing the learner's L2 knowledge/ability.[3] I do so by drawing upon currently available theoretical as well as empirical insights. In the next section (Intake

Processes) I shall try to relate the role played by intake factors in activating intake processes.

FIGURE 4
Intake Factors Continuum



Individual Factors

Several individual factors have been studied to assess their role in L2 development. They include age, anxiety, empathy, extroversion, introversion, memory, and risk-taking. Of these variables, age and anxiety appear to play a relatively greater role than the others.

Age

According to Lenneberg's (1967) critical period hypothesis, languages are best learned before puberty, after which everyone faces certain constraints in language development, primarily due to lateralization. While the L2 research based on this hypothesis has yielded mixed results, there seems to be a consensus that a mismatch does exist between the potential for native-like lexical and syntactic knowledge/ability and the potential for native-like phonological knowledge/ability if learning starts after puberty. Native-like accent is almost impossible unless first exposure takes place very early, probably as early as age 6, the reason presumably being that L2 phonological production is the only aspect of language performance that has a neuromuscular basis (Scovel, 1988).

With regard to the development of syntactic and pragmatic knowledge/ability, there are those who suggest that "younger is better" (Krashen, 1981; Johnson & Newport, 1989). Their explanation is mostly based on cognitive capacity—namely, that child and adult L2 development might actually involve different processes, the former utilizing innate properties of language acquisition as in L1 acquisition, the latter employing general problem-solving abilities, and thus accounting for the differential effect of age. But, there are others who suggest that "older is better" because older learners have cognitive and literacy skills which tend to enhance their L2 development (Snow, 1983; Ellis, 1985; McLaughlin, 1987). They suggest that there are contexts in which teenagers and adults not only reach native-like proficiency, but they also progress more rapidly and perform with greater accuracy in the early stages of learning than do their younger counterparts.

A balanced approach suggests a *sensitive* rather than a *critical* period for L2 development (Lamendella, 1977; Singleton, 1989). Such a suggestion acknowledges that certain language skills are acquired more easily at particular times in development than at other times, and that some language skills can be learned even after the critical period, although less easily. It seems reasonable to deduce from research that age will have variable influence on L2 development, depending on which intake factors are brought to bear on the learning experience of an individual learner, when, and in what combination.

Anxiety

Anxiety refers to an emotional state of apprehension, tension, nervousness, and worry, mediated by the arousal of the automatic nervous system. In the context of L2 learning, anxiety is characterized by feelings of self-consciousness, fear of negative evaluation from peers and teachers, and fear of failure to live up to one's own personal standards and goals (Bailey, 1983; Horwitz, Horwitz, & Cope, 1986). Adult L2 learners typically develop a sense of incompetence about internalizing the properties of their L2, and about the inability to present themselves in a way consistent with their self-image and self-esteem.

While psychologists postulate a positive, facilitating anxiety and a negative, debilitating anxiety, each working in tandem (Alport & Haber, 1960), L2 researchers have by and large focused on the effect of the latter. In a series of experiments, Gardner and his colleagues (Gardner, 1985; MacIntyre & Gardner, 1989, 1991; Gardner, Day, & MacIntyre, 1992) found that anxiety has a significant deleterious effect on L2 development. Language anxiety has also been found to correlate negatively with global measures of achievement such as objective tests and course grades as well as measures involving specific processes such as vocabulary recall. Similarly, studies conducted by Horwitz, Horwitz, and Cope (1986), and Madsen, Brown, and Jones (1991) show that a significant level of anxiety is experienced by a majority of their subjects in response to at least some aspects of L2 development. Gardner and his colleagues explain the effects of language anxiety by surmising that it consumes attention and cognitive resources that could otherwise be allocated to developing L2 knowledge/ability. Thus, anxiety may occur at any of the three levels of language development: input, intake processing, or output (Tobias, 1986). At input, it may cause attention deficits; intake processing may be affected because time is divided between the processing of emotion-related and task-related cognition; and, it may also interfere with the retrieval of previously learned information, thereby affecting output. These insights have been supported by diary (Bailey, 1983) as well as experimental (MacIntyre & Gardner, 1991) studies. While a clear picture of how anxiety actually affects L2 development is yet to emerge, it appears that anxiety may have different effects at different stages of L2 development, depending on its interplay with other intake factors and intake processes.

Negotiation Factors

The term *negotiation* has been widely used in ethnomethodology and conversational analysis to refer to the ways in which interlocutors communicate meaning, and structure their social relationships through interaction. Negotiation is important for L2 development because it

implies the use and constant refinement of linguistic perceptions and pragmatic concepts.

There are at least three aspects of negotiation: *introspection*, *interaction*, and *interpretation*. *Introspection* focuses on the particularity of the individual learner. It is intrapersonal, involving, in the Vygotskyan sense, a lonely mental journey through and about meanings and contexts. It can sometimes lead to organization of knowledge through the discovery of structuring principles (Bialystok, 1991, p. 70). But this aspect of negotiation is rarely available for direct observation and analysis.

The other two aspects of negotiation—*interaction* and *interpretation*—are largely interpersonal, involving joint exploration of meaning between participants in a communicative event. Meaning cannot be conveyed entirely by surface level syntactic and semantic specifications. It has to be derived through negotiation between interlocutors. Unlike introspection, the interactional and interpretational aspects of negotiation are indeed available for observation and analysis.

Interaction

Research carried out by Long (1981), Pica (1987) and others reveals that L2 learners need to be provided with opportunities for negotiated interaction in order to help them develop language knowledge and ability. Negotiated interaction entails the learner's active involvement in clarification, confirmation, comprehension checks, requests, repairing, reacting, and turn-taking. It also means that the learner should be given the freedom and encouragement to initiate talk, not just to react and respond to it.

Several experimental studies reveal the importance of negotiated interaction. We now know that modified input and modified interaction together accelerate the rate of L2 development (Long, 1981). We also know that learners who maintained high levels of interaction in the L2 progressed at a faster rate than learners who interacted little in the classroom (Seliger, 1983) and that learners gain opportunities to develop their productive capacity in the L2 if demands are placed on them to manipulate their current IL system so that they can make their initially unclear messages become meaningful to their interlocutors (Swain, 1985). These results have been replicated by Pica and her colleagues (Pica, 1987, 1991; Pica, Young, & Doughty 1987) who report that what enables learners to move beyond their current IL receptive and expressive capacities are opportunities to modify and restructure their interaction with their interlocutor until mutual comprehension is reached. These studies lend credence to an earlier claim by Allwright (1984, p. 9) that "the importance of interaction is not simply that it creates learning opportunities, it is that it constitutes learning itself."

Interpretation

Closely associated with the opportunity to interact is the ability to interpret target language utterances as intended. It constitutes the language knowledge/ability to differentiate what is said from what is meant. Inability to do so results in pragmatic failure (Thomas, 1983). The L2 learner's interpretive ability entails an understanding of pragmatic rules such as those associated with the Hymesian concept of communicative appropriacy and the Gricean maxims of conversational implicature.

Interpretive procedures have implications for L2 development, for, as Widdowson (1983, p. 106) points out, they are "required to draw systemic knowledge into the immediate executive level of schemata and to relate these schemata to actual instances." The L2 learner encountering TL instances has to learn to deal with several possibilities:

> (a) Utterances may convey more than their literal meaning. *It's cold in here,* when spoken in certain contexts may convey the meaning of, *Would you mind closing the window?*
>
> (b) Utterances may not convey their literal meaning. *How are you* in English is often not answered at all. When it is, the speaker does not expect to learn about the hearer's ailments.
>
> (c) Utterances may convey the intended meaning only if they are accompanied by certain specifications: In American English, as foreign students have found to their chagrin, *drop in anytime* is not a genuine invitation unless clearly followed by the mention of time and place.

As these examples show, interpretation of intended meaning becomes critical, not because the notions of request, phatic communion, or invitation are unfamiliar to L2 learners, but because these familiar notions can have linguistic realizations in L2 that are very different from those in L1. In addition, learners need to be aware that lines of interpretation are likely to diverge based on cultural background (Gumperz, 1982) as well as subcultural levels of ethnic heritage, class, geographic region, age, and gender (Tannen, 1992; Kramsch, 1993).

For a realization of the full potential of negotiation factors—particularly a positive correlation with other intake factors—the individual factor of anxiety and the affective factors of attitude and motivation (see below) may be required. Aston (1986), for instance, found that interactive classroom tasks designed to promote negotiation may indeed fail to do so if they produce tension and anxiety in the learner. Thus, in conjunction with other relevant intake factors,

negotiation factors provide ample opportunities for L2 learners to pay particular attention to new features of the linguistic input that are being currently learned, thereby contributing to activating other intake factors and intake processes.

Tactical Factors

Tactical factors refers to an important aspect of L2 development: the learner's awareness of, and practical ability to use, appropriate tactics for effective learning of the TL, and efficient use of the limited repertoire developed so far. In the L2 literature, such tactics are discussed under the general rubrics of learning strategies and communication strategies.

Learning Strategies

Learning strategies are operations and routines used by the learner to facilitate the obtaining, storage, retrieval, and use of information (Rubin, 1975). They are also "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (Oxford, 1990, p. 8). The term *learning strategies,* then, refers to what learners knowingly or unknowingly do to regulate their learning.

It was only during the 70s that researchers began to study systematically the explicit and implicit efforts learners make to learn their L2 (Rubin, 1975; Naiman, Frohlich, Stern, & Todesco, 1978). Major typologies proposed so far (Rubin, 1975; O'Malley & Chamot, 1990; Oxford, 1990; Wenden, 1991) classify learning strategies into at least three broad categories: *metacognitive, cognitive,* and *social/affective. Metacognitive strategies* refers to higher order executive strategies such as thinking about the learning process, planning for and monitoring learning as it takes place, and self-evaluation of learning after the learning activity. *Cognitive strategies* refers to specific steps such as summarizing, deducing, transferring, and elaborating. *Social/affective strategies* refers to interpersonal strategies including cooperative learning, peer group discussion, and so on.

Research cited above shows that there are many individual ways of learning a language successfully and that different learners will approach language learning differently. However, it has often been found that more effective learners use a greater variety of strategies and use them in ways appropriate to the language learning task and that less effective learners not only have fewer strategy types in their repertoire but also frequently use strategies that are inappropriate to the task (O'Malley & Chamot, 1990). One of the primary objectives of research on learning strategies is to make the intuitive knowledge possessed by

good language learners more explicit and systematic, so that such a knowledge can be used for strategy training to improve the language learning abilities of other learners.

Communication Strategies

Communication strategies are "potentially conscious plans for solving what to an individual presents itself as a problem in reaching a particular communicative goal" (Faerch & Kasper, 1980, p. 81). The earliest taxonomy of communication strategies is the one proposed by Tarone (1977). It has three broad categories: *paraphrase, borrowing,* and *avoidance. Paraphrase* includes approximation, word coinage, and circumlocution. *Borrowing* includes literal translation, language switch, appeal for assistance, and mime. *Avoidance* includes topic avoidance and message abandonment.

The Tarone taxonomy in one way or another relates to interlingual, intralingual, or paralingual features. In other words, it is a product-oriented, surface-structure framework which conflates the distinction between linguistic realizations and mental processes. Bialystok and Kellerman (1987) point this out and consider in detail an example given by Tarone for the communication strategy of word coinage, *airball* for *balloon,* and use it to explain the flaw in the product-based taxonomical approach: "If learner A describes a balloon as a *ball with air* and learner B says *an airball,* then a traditional product-oriented taxonomy would call the first utterance *circumlocution,* and the second *word coinage*" (p. 164) even though both *a ball with air* and *airball* refer to identical sets of criterial attributes. Bialystok and Kellerman stress the need to go beyond IL production and to differentiate surface level communication strategies from deep level psychological processes.

Accordingly, Bialystok and Kellerman (1987) and Bialystok (1990) suggest that the strategic behavior of learners can be classified into *linguistic* and *conceptual* strategies. The linguistic strategy refers to the use of features and structures from another language (usually L1), and the conceptual strategy refers to the manipulation of the intended concept. They further divide conceptual strategy into two possible approaches: *holistic* and *analytic.* The holistic approach involves using a similar referent, as in *stove* for *microwave.* The analytic approach involves selecting criterial properties of the referent, as in *a machine that cooks and defrosts very fast by means of waves,* for *microwave.* While scholars differ on the relative explanatory power of various taxonomies, there is near unanimity concerning the facilitating role played by tactical factors in L2 development. Tactical factors can help learners pay attention to potentially useful linguistic input, thereby contributing to its recognizability (see **Input**, above).

Affective Factors

The individual learner's disposition to learn has always been recognized as an important variable in L2 development. The term *affective factors* refers to two closely connected variables that characterize learner disposition: attitudes and motivation. L2 researchers initially studied the two variables together, proposing a linear relationship in which attitude influenced motivation and motivation influenced L2 development (Gardner, 1985). Recent research, however, indicates the usefulness of separating them (Crookes & Schmidt, 1991).

Attitudes

Attitudes are one's evaluative responses to a person, place, thing, or event. According to social psychologists, attitudes are individually driven; that is, they are one's personal thoughts or feelings based on one's beliefs or opinions; therefore, different individuals develop different shades of attitudes towards the same stimuli. Attitudes are also socially grounded; that is, they must be experienced as related to subjects or events in the external world. To a large extent, an individual's attitudinal behavior is determined by social constructs, making it broadly predictable (Eiser, 1987).

In the context of L2 development, there are two forces which appear to shape the learner's language attitude: *socio-educational* (discussed under *Environmental Factors,* below) and *pedagogic.* From a pedagogic point of view, teachers, learners, and the learning situation can interact to trigger positive or negative attitudes in the learner. One of the reasons for differential success among L2 learners is their attitude towards learning the language in a particular situation, a positive attitude about language learning being a necessary but not sufficient condition for success (Naiman, Frohlich, Stern, & Todesco, 1978).

The teacher's objectives, activities, and attitudes also play a role in influencing the learner's attitude to language learning (Malcolm, 1987). In fact, teachers' attitudes seem to have a greater influence on L2 development than even parental or community-wide attitudes (Tucker & Lambert, 1973). Furthermore, a review of diary studies shows that learners can hold negative attitudes towards the learning situation if there is a mismatch between their curricular objectives and their teacher's (Schumann & Schumann, 1977).

Learner attitude towards speakers of the TL, and its impact on L2 development, have been widely studied, resulting in conflicting findings. Early experiments conducted by Gardner and his colleagues (see, for instance, Gardner & Lambert, 1972) showed high correlation between the learner's positive attitude towards speakers of the TL, and L2 development. Such a conclusive claim has since been questioned (Oller,

Baca & Vigil, 1977; Cooper & Fishman, 1977). Recent research, however, shows that, although L2 learners might develop a negative attitude towards the TL community for cultural or political reasons, a positive attitude towards the TL itself and its usefulness can contribute to L2 development (Berns, 1990).

Motivation

Motivation is perhaps the only intake variable that has been consistently found, in various contexts and at various levels of L2 development, to correlate positively with success. Most studies on motivation have been inspired by the distinction (Gardner & Lambert, 1972) between *integrative* and *instrumental* motivations. *Integrative motivation* refers to an interest in learning an L2 in order to integrate or at least interact with members of the TL community. *Instrumental motivation* refers to an interest in learning an L2 for functional purposes such as getting a job or passing an examination. In several studies, Gardner, Lambert, and colleagues (see Gardner, 1985, and the references cited there) reported that integrative motivation is far superior to instrumental motivation.

Studies conducted in other learning/teaching contexts (Lukmani, 1972; Chihara & Oller, 1978) failed to show the superiority of integrative motivation. In fact, a comprehensive review of motivational studies found a wide range of correlations covering all possibilities: positive, nil, negative, and ambiguous (Au, 1988). Recent studies by Gardner and his colleagues (Gardner & MacIntyre, 1991) clearly demonstrate that both integrative motivation and instrumental motivation have "consistent and meaningful effects on learning, and on behavioral indices of learning" (Gardner & MacIntyre, 1991, p. 69).

It is now fairly clear that the binary approach proposed by social psychologists does not adequately explain the perceived correlation between motivational types and L2 development. It may be beneficial to turn to cognitive psychologists who have suggested three types of motivation: *intrinsic*, *extrinsic*, and *achievement*.[4]

Intrinsic motivation is the desire to engage in activities characterized by enjoyment (Csikszentmihalyi, 1975; Deci, 1975; Deci & Ryan, 1985). There is no apparent reward except the experience of enjoying the activity itself. According to Csikszentmihalyi (1975), true enjoyment accompanies the experience of what he calls *flow*, that peculiar, dynamic, holistic sensation of total involvement with the activity itself. Thus, intrinsically motivated activities are ends in themselves rather than means to an end. Individuals seek out and engage in intrinsically motivated activities in order to feel competent and self-determining. Like basic human drives, intrinsic needs are

innate to the human organism and function as an important energizer of behavior.

Unlike intrinsic motivation, extrinsic motivation can be triggered only by external cues, which include gaining and maintaining peer, sibling, or adult approval; avoiding peer, sibling, or adult disapproval; and gaining or losing specific tangible rewards. It is conditioned by the practical considerations of life with all its attendant sense of struggle, success, or failure. Thus, extrinsic motivation is associated with lower levels of self-esteem and higher levels of anxiety, compared to intrinsic motivation.

Achievement motivation refers to motivation and commitment to excel. It is involved whenever there is competition with internal or external standards of excellence. It is a specific motive that propels one to utilize one's fullest potential (McClelland, Atkinson, Clark, & Lowell, 1953; Deci, 1975; Deci & Ryan, 1985).

It may be hypothesized that all three types of motivation will influence L2 development in different degrees, depending on individual dispositions and different socio-educational contexts. To be primarily motivated for intrinsic reasons, learners have to get involved in continual cycles of seeking language learning opportunities and conquering optimal challenges in order to feel competent and self-determining. They have to let their natural curiosity and interest energize their language learning endeavor and help them overcome even adverse pedagogic and environmental limitations. To be primarily motivated for achievement considerations, the learners have to strive to reach internally induced or externally imposed standards of excellence, in a spirit of competition and triumph. It appears reasonable to assume that a vast majority of L2 learners are primarily motivated for extrinsic reasons. In fact, extrinsic motivation accounts for most of what has been reported in terms of integrative and instrumental motivation (van Lier, 1991).

The relationship between intrinsic, extrinsic, and achievement motivations is yet undetermined. The general trend of experimental studies has been to suggest that the relationship is essentially unstable and nonlinear, and that, over time, several intake factors, particularly individual, affective, and environmental factors, contribute to shape the relationship. Thus, the interplay of input, intake factors, and intake processes appears to influence the role of affective factors in L2 development.

Knowledge Factors

Knowledge factors refers to language knowledge and metalanguage knowledge. All adult L2 learners exposed to formal language education in their L1 inevitably bring with them not only their L1 knowledge/ability but also their own perceptions and expectations about

language, language learning, and language teaching. Both language knowledge and metalanguage knowledge are implicitly or explicitly present all the time in the L2 learner's mind, and hence play a crucial role in L2 development.

Language Knowledge

Language knowledge represents L2 learners' knowledge of and ability in the language system(s) already known to them, and the developing knowledge/ability of the TL they are currently learning. All adult L2 learners minimally possess L1 knowledge/ability by virtue of their experience and also by virtue of being members of their speech community. Empirical evidence shows that the L2 user does not "effectively switch off the L1 while processing the L2, but has it constantly available" (Cook, 1992, p. 571).

The influence and use of language knowledge can be a facilitating or a constraining factor in L2 development. As Corder (1983, p. 91) suggests, prior language knowledge "created and remembered from the learner's own linguistic development" may very well provide the starting point (*initial hypothesis*) of the L2 developmental continuum. Prior knowledge may also impose a set of constraints on "the domains from which to select hypotheses about the new data one is attending to" (Schachter, 1983, p. 104). In addition, through the intake process of transfer, language knowledge intersects with other intake factors and intake processes across various phases of L2 development (see *Grammaticalization*, below, for details on language transfer as an intake process).

Metalanguage Knowledge

Metalanguage knowledge is considered to be an important facilitator of L2 development (Gass, 1983; Donato & Adair-Hauck, 1992; Green & Hecht, 1992). It is "an individual's ability to match, intuitively, spoken and written utterances with his/her knowledge of a language" (Masny & d'Anglejan, 1985, p. 176). It encompasses learners' knowledge/ability not only to analyze their own language but also to make comparisons between their LI and L2, between LI and other languages previously learned, and between L2 and other languages previously learned.

There seems to be a strong relationship between language experience and metalanguage knowledge. Empirical studies reveal that prior language experience helps L2 learners develop an intuitive "feel" for the TL (Gass, 1983; Donato & Adair-Hauck, 1992; Green & Hecht, 1992). L2 learners have been shown to be able "to produce a correct correction when they have an incorrect explicit rule or no explicit rule at all,"

thereby demonstrating the presence of L2 intuitions (Green & Hecht, 1992, p. 176). Extending the role of metalanguage knowledge, Cook (1992) has recently proposed the concept of *multicompetence* to describe "the compound state of a mind with two grammars" (p. 558) in contrast to *monocompetence*, the state of mind with only one grammar. According to him, the multicompetent individual approaches language differently in terms of metalinguistic awareness. Cook hypothesizes that such a heightened metalinguistic awareness may impact other aspects of cognition, thereby shaping the cognitive processes of L2 development. There is thus both theoretical and empirical evidence to support the view that the knowledge factor plays an important role in L2 development. In fact, knowledge as an intake factor is much more than language and metalanguage knowledge/abilities put together. Perhaps a more apt term is *prior text*, as used by Becker (1983). In relation to L2 experience, the role of prior text is to help the learner characterize the present in the past and "to make any new utterance reverberate with past ones, in unpredictable directions" (Becker, 1983, p. 218).

Environmental Factors

Environmental factors refers to social, cultural, political, economic, educational, and technological milieus in which L2 learning and teaching take place. The impact of these factors on L2 development has not been fully explored; however, there are indications that L2 development is highly responsive to social and educational contexts.

Social Context

Social context refers to a range of language learning environments such as the home, the neighborhood, the classroom, and the society at large. Any serious attempt to study L2 development necessarily entails the study of social context as an important variable (Heath, 1983; Beebe, 1985; Breen, 1985; Sridhar & Sridhar, 1986; Wolfson, 1989; Wong-Fillmore, 1989; Berns, 1990; Kramsch, 1993). In fact, Beebe (1985) argues that the learner's choice of what input becomes intake is highly affected by social and situational contexts. Additionally, social context is critical because it shapes various learning/teaching issues such as the motivation for L2 learning, the goal of L2 learning, the functions L2 is expected to perform in the community, the availability of input to the learner, the variation in the input, and the norms of proficiency acceptable to that particular speech community.

Specific social settings such as the neighborhood and the classroom in which learners come into contact with the new language have also been found to influence L2 development. Studies conducted by Wong-Fillmore (1989) reveal that social settings create and shape

opportunities for both learners and competent speakers of the L2 to communicate with each other, thereby maximizing learning potential. A recent study by Donato and Adair-Hauck (1992) concludes that the social and discursive context in which instructional intervention is delivered plays a crucial role in facilitating L2 development in the classroom.

The social context also shapes the role of the TL in a particular speech community and the nature of the linguistic input available for learners. Comparing the sociolinguistic profiles of English language learning and use in India, West Germany, and Japan, Berns (1990) illustrates how these three different social contexts contribute to the emergence of various communicative competencies and functions in these countries, thereby influencing L2 development and use in significantly different ways. In these and similar contexts, the TL plays a role that is complementary or supplementary to local/regional language(s). These competencies and functions invariably determine the nature and quality of input that is available to the learner. Most often, the learner is not exposed to the full range of the TL in all its complexity that one would expect in a context where it is used as the primary vehicle of communication.

Educational Context

Closely related to social context is educational context. Studies on educational contexts grounded in educational psychology emphasize the inseparability and reciprocal influence of educational institutions and settings in which learning/teaching operations are embedded (Bloome & Green, 1992). Although the educational context in which learning occurs shapes language learning abilities, its exact influence on L2 development has not been fully explored. L2 development may seem like a discrete activity, but it is actually grounded in larger educational contexts that have profound effect on learning. For instance, it is the educational context which shapes policy constraints, language planning, and most importantly, the learning opportunities available to the L2 learner. It is impossible to insulate classroom life from the dynamics of political, educational, and societal institutions (Kachru, 1990; Tollefson, 1991).

To sum up this section, all the intake factors outlined above—individual, negotiation, tactical, affective, knowledge, and environmental—appear to interact with each other in as yet undetermined ways. They play a significant role in triggering and maximizing the operational effectiveness of intake processes, to which we turn now.

Intake Processes

Intake processes are internal operations that at once mediate between, and respond to, input and intake factors. They consist of operations which are specific to language learning as well as those which are required for general problem-solving. They are linguo-cognitive in nature; that is, they are either primarily linguistic with an added cognitive dimension, or primarily cognitive with an added linguistic dimension. As procedures and operations that are internal to the learner, intake processes and their interrelationships remain the most vital and least understood link in the input-intake-output chain. In the rest of this section, I outline each of these processes.

Linguistic Processes

Intake processes that are primarily linguistic in nature include *grammaticalization*, a process that involves linguistic structures or functions common to most natural languages, and *language transfer*, a process that involves the interplay between earlier and later learned language systems.

Grammaticalization

The process of grammaticalization refers primarily to the role played by Universal Grammar (UG), an element of biologically endowed genetic principles common to the human species. A review of research shows two broad claims with regard to the role played by UG principles in L2 development: (a) all of them operate in L2 as they do in L1; and (b) some of them operate in L2 but not in the same way as they do in L1. Researchers such as Gass and Ard (1984); Flynn (1987); Liceras (1989); and White (1990) maintain that L2 learners have access to the same innate constraints and properties of UG as do children. They say so primarily because there are syntactic representations in child L1 and adult L2 production which cannot be induced simply from the available linguistic input. They point out that in order to form and test hypotheses about correct and incorrect language forms, learners need two kinds of evidence, positive and negative. In the context of L2 development, positive evidence comes from language input which contains well-formed utterances, and negative evidence comes from feedback to learners in the form of direct or indirect correction. Children get hardly any negative evidence, and the negative evidence that L2 learners get is certainly inadequate. Therefore, it is assumed that child L1 acquirers and adult L2 learners have access to the same innate universal constraints and properties.

Researchers such as Schachter (1988), Bley-Vroman (1988), Clahsen (1990), and Sharwood Smith (1991) question the preeminence of UG principles in determining L2 development. Pointing out the ways in which L2 learning differs from L1 acquisition, Bley-Vroman (1988) has proposed a Fundamental Difference Hypothesis which states that L1 knowledge and general problem-solving capacity of the adult L2 learner assume much (not all) of the role played by UG in child L1 acquisition. Extending the Bley-Vroman proposal, Clahsen (1990, pp. 150-151) offers "a particular version of the Fundamental Difference Hypothesis, according to which (a) parameterized UG principles are lost in adult L2 learners, and (b) stable UG principles are present only through the learner's first language." Based on the findings available at present, it seems reasonable to assume that some sort of UG does continue to play a role in adult L2 development, but not in the same significant way it does in child L1 acquisition.

Yet another strand of grammaticalization emphasizes the projective power that is supposed to enable the acquisition of one rule to trigger the acquisition of all the other rules that are implicationally linked to it. Gass (1979) tested the projection hypothesis by using the Relative Clause Accessibility Hierarchy proposed by Keenan and Comrie (1977); her study showed that the learners not only succeeded in improving their scores on the one relative clause structure that was the focus of instruction, but also on all the positions higher in the hierarchy. Eckman, Bell, and Nelson (1988) replicated the Gass study with a more rigorous research design and found that their learners also generalized instruction to other related structures when they were taught only one particular structure. Similar findings about the influence of typological universals on L2 development have been reported by Givon (1984) with regard to topic continuity hierarchy, and by Zobl (1985) with regard to the human > nonhuman markedness scale. These experimental studies reveal that learners learn not only those features that have been taught but also other features that are implicationally associated with them.

Language Transfer

Language transfer encompasses a whole range of behaviors, processes, and constraints, each of which has to do with the influence and use of the developing TL as well as the language systems already known to the L2 learner (Selinker, 1992). Drawing insights from a series of empirical studies (see the volumes edited by Gass & Selinker, 1983; Davies, Criper, & Howatt, 1984; Kellerman & Sharwood Smith, 1986), we can now conceptualize language transfer not as a mechanical transfer of L1 structure, but as a complex linguistic/cognitive process involving many factors which operate at syntactic, semantic, phonological, and discourse

levels. We learn that differences between languages in contact do not necessarily cause difficulties and that similarities do not necessarily facilitate development. We also learn that there are psychotypological constraints which result not from surface level similarities and dissimilarities but from the learner's perceptions of language distance, language specificity, and language universality (Kellerman, 1983).

In a comprehensive review of the literature on language transfer, Selinker (1992) concludes that interlingual identifications from L1 to L2 input are essential to the formation of IL and that transfer effects do not occur in an absolute all-or-nothing fashion. That is, learners do not transfer entire phonological, morphological, or syntactic systems of L1; instead, they select what to transfer and what not to transfer. Their selection process is presumably facilitated or constrained by transfer as well as by the process of grammaticalization.

Cognitive Processes

Intake processes that are primarily cognitive include *inferencing*, *structuring* and *restructuring*. These processes guide what learners have to do to develop their L2: to infer from the available/recognized input data the linguistic system of the TL, to structure appropriate mental representations of the TL system, and to restructure the developing IL system.

Inferencing

The intake process of *inferencing* involves making informed guesses to derive working hypotheses about various aspects of the TL system by using all available—and at times inconclusive—linguistic evidence which includes intralingual and interlingual cues, as well as non-linguistic evidence which includes the learner's knowledge of the world. Working hypotheses so derived may lead to interim conclusions which are tested against new evidence and subsequently rejected or refined. Inferencing thus may entail framing new insights or reframing what is already vaguely or partially known.

Learners may have at their disposal three types of inferencing attributable to at least three sources: *implicit knowledge*, *other knowledge*, and *context* (Bialystok, 1983). *Implicit knowledge* refers to information the learners intuit about the TL, even though they cannot articulate that information in the form of rules or principles. *Other knowledge* refers to the learners' knowledge about the TL, their L1, and their knowledge of the world. *Context* includes both linguistic and physical aspects of a situation which provide input. Inferencing is successful only to the degree that the learners are able to make connections between these three sources of knowledge on the one hand, and between them

and the input data on the other. Inferencing can be expected to vary from learner to learner because it reflects individual cognitive capabilities involving connections made by learners themselves, and not connections inherently found in the input data.

Structuring

The intake process of *structuring* combines elements of analysis and control proposed by Bialystok (1988, 1990). The formation of mental representations of the TL and their evolution in the course of IL development may be called *structuring*. The process helps learners construct and organize the symbolic representational system of the TL by gradually making explicit the implicit knowledge that shape their IL performance. Structuring also guides the gradual progress learners make, from unanalyzed knowledge consisting of prefabricated patterns and memorized routines, to analyzed knowledge consisting of propositions in which the relationship between formal and functional properties of the TL become increasingly apparent to the learners.

Compared to inferencing, structuring gives learners not only a greater control over the properties and principles governing the TL system, but also a greater ability to articulate them. It helps them pay selective attention to relevant and appropriate input data in order to tease out specific language problems. Structuring can also regulate the flow of information between short-term and long-term memory systems taking the responsibility for differential applicability of interim knowledge to various situations before interim knowledge gets fully established. The difference between inferenced knowledge/ability and structured knowledge/ability may contribute to the distinction Chaudron (1983, pp. 438-439) makes between *preliminary intake* and *final intake*. The former relates to "perception and comprehension of forms" and the latter to "the incorporation of the forms in the learner's grammar." Although inferenced knowledge/ability and structured knowledge/ability are partially independent and partially interacting dimensions of intake processes, they constitute two ends of a continuum.

Restructuring

The idea of *restructuring* as an intake process is derived from the work of Cheng (1985) in cognitive psychology and applied with some modification to L2 development by McLaughlin and his colleagues (McLeod & McLaughlin, 1986; McLaughlin, 1987, 1990). Restructuring can be traced to the Piagetian approach, which maintains that cognitive development is characterized by fundamental qualitative change when a new internal organization is imposed for interpreting new information. In other words, restructuring denotes neither an

incremental change in the structure already in place nor a slight modification of it, but the addition of a new structure to allow for a new interpretation. It marks a strategy shift that coordinates, integrates, and reorganizes task components, resulting in more efficient intake processing. It can operate at phonological, morphological, syntactic, semantic, and discourse levels (McLaughlin, 1990).

While most aspects of inferencing and structuring account for the reasons why intake processing requires selective attention and an extended time period for the formation of mental representations of the TL system, restructuring as an intake process accounts for discontinuities in L2 development. It has been frequently observed that while some learning occurs continuously and gradually, as is true of the development of automaticity through practice, some learning occurs in discontinuous fashion, through restructuring (McLeod & McLaughlin 1986). Restructuring is mostly a sudden, abstract, insight-forming phenomenon happening quickly and incidentally, taking very little processing time and energy.

To sum up, intake processes are primarily linguistic and cognitive mechanisms. Linguistic mechanisms of grammaticalization and language transfer, and cognitive mechanisms of inferencing, structuring and restructuring work together in as yet undetermined ways to facilitate or constrain L2 development. These intake processes seem to operate at various points on the implicit-explicit continuum, triggering incidental learning at some times and intentional learning at other times. In combination with various intake factors, these processes help learners to synthesize the developing knowledge into grammar and internalize it so as to effectively and efficiently access it in appropriate contexts.

Output

Output refers to the corpus of utterances which learners actually produce orally or in writing. In addition to well-formed utterances that may have already been structured and/or restructured, the learner output will contain (as discussed under **Input**, above) deviant utterances which cannot be traced to any of the three major sources of input, since they are the result of an interplay between intake factors and intake processes.

An Interactive Framework of Intake Processes

Having briefly discussed various aspects of input, intake, intake factors, intake processes, and output, I shall now attempt to pull these constructs together and propose what I call an interactive framework of intake processes. First, it seems reasonable to posit two criteria that any framework of intake processes must necessarily satisfy: The framework

must be capable of including all the intake factors known to play a role in intake processes; and it must reflect the interactive and parallel nature of intake processes.

The first criterion is explicit in the L2 literature. As the discussion (under **Intake Factors,** above) amply shows, there are several learner-internal and learner-external intake factors of varying importance that, separately or in combination, facilitate or constrain L2 development. The issue facing current investigations is not whether any of the intake factors promote L2 development but how many, to what extent, in what combination and in what context.

The second criterion emerges from current theories in cognitive psychology and information processing (Anderson, 1983; McClelland, Rumelhart, & the PDP Research Group, 1986). It has been reported that cognitive processing goes on simultaneously in many areas and at many different levels. Language learning might entail a non-linear, parallel, interactive process rather than a linear, serial, additive process. It was earlier believed that learners internalize the TL system primarily by using either a top-down processing, a knowledge-governed system characterized by a step-by-step progression in which output from one level acts as input for the next; or a bottom-up processing, an input-governed system characterized by a serial movement of information from the lower to the higher levels. It is now believed that language learning is governed by interactive processing in which multiple operations occur simultaneously at multiple levels, drawing evidence from multiple sources.

Given the two criteria mentioned above, the proposed interactive framework of intake processing assumes that input, intake factors, and intake processes play a coordinated role in constraining or facilitating L2 development. Language processing is considered essentially interactive, involving intake factors and intake processes which operate in parallel and simultaneous ways, shaping and being shaped by one another.

The proposed interactive framework consists of input, intake factors, a central processing unit (CPU), and output. The CPU includes linguistic processes of grammaticalization and language transfer, and cognitive processes of inferencing, structuring, and restructuring.

As *Figure 5* indicates, intake processing is activated when input information enters the CPU either directly or through one or more intake factors. One can speculate that the basic properties of naturally endowed formal universals, as well as other linguistic/cognitive knowledge/abilities that adult learners bring to bear on L2 development initiate the process of language construction. At this early stage, intake processing appears to operate at several layers, some of which may depend heavily on temporary, limited-capacity, working-memory systems

which in turn involve to a large degree prefabricated routines and idiomatic expressions.

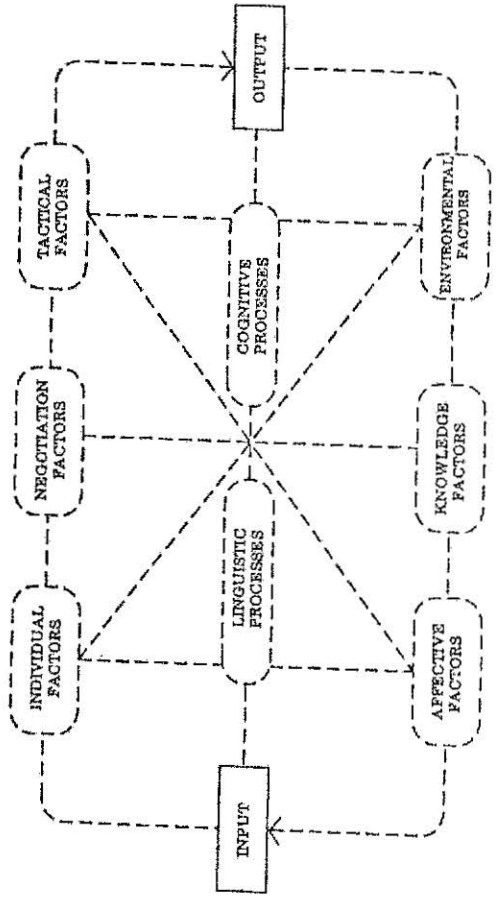


FIGURE 5
An Interactive Framework of Intake Processes

At this stage, an important task of the CPU is to reduce the pressure on working memory systems by coding the incoming information according to certain organizational schemas. Such a coding, which is probably a precursor to fully established mental representations, is assisted by the intake process of inferencing. Inferencing helps learners derive working hypotheses about syntactic, semantic, and pragmatic aspects of the TL. Positive evidence in the form of additional input data, and negative evidence in the form of feedback from competent speakers of the TL, make the learners reject or refine working hypotheses.

If the process of inferencing constitutes a designing of working hypotheses, the process of structuring constitutes a devising of mental representations. As we learn from schema theory, the faster the testing and refinement of working hypotheses, the swifter the formation of mental representations and the greater the chances of limited-capacity, working-memory systems being purged and replaced by permanent long-term memory schemas. Memory schemas are responsible for storing incoming information, retrieving previously stored information, and pattern-matching mental representations (McClelland, Rumelhart, & the PDP Research Group, 1986). This transition from working memory systems to permanent memory schemas is critical because, as we learn from schema theorists, language use requires that linguistic units such as phonemes, morphemes, words, phrases, syntactic patterns, and other discourse units be abstracted and stored in the form of memory schemas.

Repeated cycles of rejection and refinement of working hypotheses, and the construction of memory schemas mediated by intake processes, particularly by the process of structuring, result in the establishment of mental representations of the TL, thereby considerably increasing learners' ability to gain control over the properties and principles of the TL system. Any remaining gap in the establishment of mental representations is taken care of either by further opportunities for intentional corrective learning or by the activation of the process of restructuring. Restructuring represents a process of quick insight formation that could result in incidental learning whereby complex and hitherto unclear language problems are teased out, paving the way for accurate decisions about the TL system.

Each of the intake processes is constrained not merely by the availability/recognizability of linguistic input and the interplay of intake factors but also by the role played by learner output. The arrows connecting input and output (*Figure 5*) suggest that the latter is not a terminal point; it is rather a part in a cycle serving as an important source of input data for the learner, thereby affecting the course of L2 development (Swain, 1985; Schmidt & Frota, 1986).

In explaining intake processing, the interactive framework proposed here incorporates several aspects of parallel distributed processing[5] at both micro and macro levels. At the micro level, intake

processing is considered to involve a large number of parallel, simultaneous, and interacting processes such as perception, syntactic parsing, and semantic interpretation, and the selection of whatever information is relevant and useful, be it phonological, syntactic, semantic, or pragmatic. The development of some syntactic rules, for example, often depends on the development of a rule in some other domain, say a phonological or lexical rule, or vice versa (Ard & Gass, 1987; Klein, 1990). Following the connectionist perspective, the intake processing network is seen as a continual strengthening or weakening of interconnections in response to examples encountered in the input data, and experience in using the developing system.

At the macro level, the framework posits a criss-cross interplay among intake factors on the one hand, and between them and intake processes on the other. Most of the intake factors appear to interweave and interact with each other in a synergic relationship where the whole is greater than the sum of the parts. To draw an analogy, the intake factors function much like the subsystems of our ecological system in the sense that each subsystem operates to influence, and to be influenced by, the other. How the learner seeks, recognizes, attends to, and controls the input data depends to a large extent on the synergy of intake factors.

The interactive framework also suggests that the linguistic input is not processed linearly, proceeding step-by-step from one intake factor through another, or from one intake process through another. Instead, the entire operation is seen as interactive and parallel, responding simultaneously to all available factors and processes at a given point of time. In other words, none of the intake factors by itself seems to be a *prerequisite* for another to be activated, but all are considered *co-requisites*. The processing of input data is never consistent; it varies according to varying degrees of influence brought to bear on it by unstable and as yet unknown configurations of intake factors and intake processes. Different intake factors and processes take on different statuses in different "ecological conditions," thereby significantly affecting learners' working hypotheses about the TL and their strategies for learning and using it. The configuration also varies widely within an individual learner at different times and situations of learning, and also among learners, thereby accounting for wide variations in degree of attainment.

Conclusion

This paper explored the concepts of intake, intake factors, and intake processes in order to interpret the factors and processes facilitating adult L2 development in formal contexts. It has been argued here that any framework of intake processing must be capable of including multiple intake factors known to play a role in L2

development, and that it must reflect the interactive, parallel, and simultaneous nature of intake processes. Accordingly, this paper attempted to design an interactive framework by synthesizing theoretical and empirical insights derived from interrelated disciplines such as second language acquisition, cognitive psychology, information processing, schema theory, and parallel distributed processing.

In addition to input and output, the interactive framework of intake processes presented here consists of a cluster of intake factors (Individual, Negotiation, Tactical, Affective, Knowledge and Environmental factors) and intake processes (linguistic processes of grammaticalization and language transfer, and cognitive processes of inferencing, structuring, and restructuring). Interweaving and interacting in a synergic relationship, each intake factor shapes and is shaped by the other. The interactive nature of intake factors and intake processes suggests that input can be successfully converted into intake if, and only if, the intake factors and processes are optimally favorable and if the consistent absence of one or a combination of these constructs may result in partial learning.

The interactive framework presented here casts doubts about the nature and scope of current research in L2 development. For the past 25 years, we have been focusing mostly upon narrowly circumscribed research problems within each intake variable, accumulating an impressive array of unrelated and unrelatable findings which, by the very nature of investigation, can allow only a limited and limiting view of L2 development. If, as this paper emphasizes, several intake factors facilitate the course of L2 development; if these factors are mutually dependent; if they shape and are shaped by each other; and if they are constantly acted upon by intake processes which are interactive, parallel, and simultaneous, then it is imperative that we reframe our research agenda by focusing on the synergic relationships between and within intake factors and processes in order to find, as anthropologist Gregory Bateson would say, "the pattern that connects."

Notes

1. To avoid the conceptual connotations attached to *acquisition* and *learning*, I use the theory-neutral term *development*, which indicates that L2 knowledge cannot be easily dichotomized as acquired/learned or implicit/explicit.

2. Unlike the proponents of intake as product or intake as process, Boulouffe (1986, p. 258) treats intake as a dual construct having both product and process components: "Intake as a process originates in the speaker's intent, and the learner's learning strategies initiate a debate between assimilation and accommodation. Intake as a product is the result of intake as a process."

3. I use *knowledge/ability* instead of *competence* and *performance*, which have been used variously in various contexts. *Knowledge* refers to the notion of knowing the language, and *ability* refers to the practice of using the language. To indicate that knowledge and ability are not clearly separable dichotomies, I use *knowledge/ability* as a compound term. For an in-depth discussion on this issue, see the 1989 thematic issue of *Applied Linguistics, 10* (2).

4. The intrinsic-extrinsic approach is not new to L2 research. Scholars have made use of this approach from time to time. Recently, Brown (1990); Crookes, and Schmidt (1991); and van Lier (1991) have either used or suggested the use of this approach.

5. The general idea of parallel, simultaneous, multiple processes suggested in the connectionist/PDP model is useful for interpreting intake processing. However, some of the other tenets of the PDP model may not be applicable to adult L2 development. For instance, the model (a) does not take into account important intake factors such as affective factors, environmental facts that may influence intake processes, and (b) starts with some form of *tabula rasa*, which would seem to disallow any innate linguistic abilities as a driving force in L2 development (see Gasser, 1990, for a detailed critique).

References

Allwright, R. L. (1984). Why don't learners learn what teachers teach? —The interaction hypothesis. In D. M. Singleton & D. G. Little (Eds.), *Language learning in formal and informal contexts* (pp. 3-18). Dublin: IRAAL.

Alpert, R. & Haber, R. (1960). Anxiety in academic achievement situations. *Journal of Abnormal and Social Psychology, 61*, 207-215.

Anderson, J. R. (1983). *The architecture of cognition*. Cambridge, MA: Harvard University Press.

Ard, J. & Gass, S. M. (1987). Lexical constraints on syntactic acquisition, *Studies in Second Language Acquisition, 9*, 233-251.

Aston, G. (1986). Trouble-shooting in interaction with learners. The more the merrier? *Applied Linguistics, 7*, 128-143.

Au, S. Y. (1988). A critical appraisal of Gardner's social-psychological theory of second language (L2) learning. *Language Learning, 38*, 75-100.

Bailey, K. M. (1983). Competitiveness and anxiety in adult second

language learning: Looking at and through the diary studies. In H. Seliger & M. Long (Eds.), *Classroom oriented research in second language acquisition* (pp. 67-103). Rowley, MA: Newbury House.

Beebe, L. M. (1985). Input: Choosing the right stuff. In S. M. Gass & C. Madden (Eds.), *Input in second language acquisition* (pp. 404-414). Rowley, MA: Newbury House.

Becker, A. L. (1983). Toward a post-structuralist view of language learning: A short essay. *Language learning, 33*, 217-220.

Berns, M. (1990). *Contexts of competence: Social and cultural considerations in communicative language teaching*. New York: Plenum.

Bialystok, E. (1983). Inferencing: Testing the "hypothesis-testing" hypothesis. In H. W. Seliger & M. H. Long (Eds.), *Classroom oriented research in second language acquisition* (pp. 104-123). Rowley, MA: Newbury House.

Bialystok, E. (1988). Psycholinguistic dimensions of second language proficiency. In W. Rutherford & M. Sharwood Smith (Eds.), *Grammar and second language teaching: A book of readings* (pp. 31-50). New York: Newbury House/Harper and Row.

Bialystok, E. (1990). *Communication strategies: A psychological analysis of second language use*. Oxford: Basil Blackwell.

Bialystok, E. and Kellerman, E. (1987). Language strategies in the classroom. In B. Das (Ed.), *Communication and learning in the classroom community* (pp. 160-175). Singapore: SEAMEO Regional Language Centre.

Bley-Vroman, R. (1988). The fundamental character of foreign language learning. In W. Rutherford & M. Sharwood Smith (Eds.), *Grammar and second language teaching: A book of readings* (pp. 19-30). New York: Newbury House/Harper and Row.

Bloome, D. & Green, J. L. (1992), Educational contexts of literacy. *Annual Review of Applied Linguistics, 12*, 49-70.

Boulouffe, J. (1986). Intake as the locus of equilibration in language learning. *Language Learning, 36*, 245-276.

Breen, M. P. (1985). The social context for language learning—A neglected situation? *Studies in Second Language Acquisition, 7*, 135-158.

Brown, D. H. (1990). M&Ms for language classrooms: Another look at motivation. In *Georgetown University Round Table on Languages and Linguistics* (pp. 383-393). Washington, DC: Georgetown University Press.

Chaudron, C. (1983). Simplification of input: Topic reinstatements and their effects on L2 learners' recognition and recall. *TESOL Quarterly, 17*, 437-458.

Chaudron, C. (1985). Intake: On models and methods for discovering

learners' processing of input. *Studies in Second Language Acquisition, 7*, 1-14.

Cheng, P. W. (1985). Restructuring versus automaticity: Alternative accounts of skill acquisition. *Psychological Review, 92*, 414-423.

Chihara, T. & Oller, J. W. (1978). Attitudes and attained proficiency in EFL: A sociolinguistic study of adult Japanese speakers. *Language Learning, 28*, 55-68.

Clahsen, H. (1990). The comparative study of first and second language development. *Studies in Second Language Acquisition, 12*, 135-154.

Cook, V. J. (1992). Evidence for multicompetence. *Language Learning, 42*, 557-591.

Cook, V. J. (1993). *Linguistics and second language acquisition*. New York: St. Martins Press.

Cooper, R. L. & Fishman, J. A. (1977). A study of language attitudes. In J. A. Fishman, R. L. Cooper, & A. W. Conrad (Eds.), *The spread of English* (pp. 239-276). Rowley, MA: Newbury House.

Corder, S. P. (1967). The significance of learners' errors. *International Review of Applied Linguistics, 5*, 161-170.

Corder, S. P. (1978). Language learner language. In J. C. Richards (Ed.), *Understanding second and foreign language learning: Issues and approaches* (pp. 71-93). Rowley, MA: Newbury House.

Corder, S. P. (1983). A role for the mother tongue. In S. M. Gass. & L. Selinker (Eds.), *Language transfer in language learning* (pp. 85-97). Rowley, MA: Newbury House.

Crookes, G. & Schmidt, R. W. (1991). Motivation: Reopening the research agenda. *Language Learning, 41*, 469-512.

Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety*. San Francisco: Jossey-Bass.

Davies, A., Criper, C. & Howatt, A. P. R. (Eds.). (1984). *Interlanguage*. Edinburgh: Edinburgh University Press.

Deci, E. L. (1975). *Intrinsic motivation*. New York: Plenum.

Deci, E. L. & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.

Donato, R., & Adair-Hauck, B. (1992). Discourse perspectives on formal instruction. *Language Awareness, 1*, 74-89.

Dulay, H., Burt, M., & Krashen, S. (1982). *Language Two*. New York: Oxford University Press.

Eckman, F. R., Bell, L. H., & Nelson, D. (1988). On the generalization of relative clause instruction in the acquisition of English as a second language. *Applied Linguistics, 9*, 1-20.

Eiser, J. R. (1987). *The expression of attitude*. New York: Springer-Verlag.

Ellis, R. (1985). *Understanding second language acquisition*. Oxford:

Oxford University Press.
Faerch, C. & Kasper, G. (1980). Processes and strategies in foreign language learning and communication. *Interlanguage Studies Bulletin, 5*, 47-118.
Flynn, S. (1987). A parameter-setting model of L2 acquisition. Dordrecht: Reidel.
Gardner, R. C. (1985). *Social psychological and second language learning: The role of attitudes and motivation.* London: Edward Arnold.
Gardner, R. C., Day, J. B., & MacIntyre, P. D. (1992). Integrative motivation, induced anxiety, and language learning in a controlled environment. *Studies in Second Language Acquisition, 14*, 197-214.
Gardner, R. C. & Lambert, W. E. (1972). *Attitude and motivation in second language learning.* Rowley, MA: Newbury House.
Gardner, R. C. & MacIntyre, P. D. (1991). An instrumental motivation in language study: Who says it isn't effective? *Studies in Second Language Acquisition, 13*, 57-72.
Gass, S. M. (1979). Language transfer and universal grammatical relations. *Language Learning, 29*, 327-344.
Gass, S. M. (1983). The development of L2 intuitions. *TESOL Quarterly, 17*, 273-291.
Gass, S. M. (1988). Integrating research areas: A framework for second language studies. *Applied Linguistics, 9*, 198-217.
Gass, S. M. & Ard, J. (1984). Second language acquisition and the ontology of language universals. In W. Rutherford (Ed.), *Language universals and second language acquisition* (pp. 33-68). Amsterdam: John Benjamins.
Gass, S. M. & Selinker, L. (Eds.). (1983). *Language transfer in language learning.* Rowley, MA: Newbury House.
Gasser, M. (1990). Connectionism and universals of second language acquisition. *Studies in Second Language Acquisition, 12*, 179-199.
Givon, T. (1984). Universals of discourse structure and second language acquisition. In W. Rutherford (Ed.), *Language universals and second language acquisition.* Amsterdam: John Benjamins.
Green, P. S. & Hecht, K. (1992). Implicit and explicit grammar: An empirical study. *Applied Linguistics, 13*, 168-184.
Gumperz, J. J. (1982). *Discourse strategies.* Cambridge: Cambridge University Press.
Hatch, E. (1983). Simplified input and second language acquisition. In R. Andersen (Ed.), *Pidginization and creolization as language acquisition* (pp. 64-86). Rowley, MA: Newbury House.
Heath, S. B. (1983). *Ways with words: Language and work in*

communities and classroom. Cambridge: Cambridge University Press.
Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *Modern Language Journal, 70*, 125-132.
Johnson, J. & Newport, E. (1989). Critical period effects in second language learning: The influence of maturational state on the acquisition of ESL. *Cognitive Psychology, 21*, 60-99.
Kachru, B. B. (1990). World Englishes and applied linguistics. *World Englishes, 9*, 3-20.
Keenan, E. & Comrie, B. (1977). Noun phrase accessibility and universal grammar. *Linguistic Inquiry, 8*, 63-99.
Kellerman, E. (1983). Now you see it, now you don't. In S. M. Gass & L. Selinker (Eds.), *Language transfer in language learning* (pp. 112-134). Rowley, MA: Newbury House.
Kellerman, E. & Sharwood Smith, M. (Eds.). (1986). *Cross-linguistic influence in second language acquisition.* Oxford: Pergamon Press.
Kimball, M. C. & Palmer, A. S. (1978). The dialog game: A prototypical activity for providing proper intake in formal instruction. *TESOL Quarterly, 12*, 17-29.
Klein, W. (1990). A theory of language acquisition is not so easy. *Studies in Second Language Acquisition, 12*, 219-231.
Kramsch, C. (1993). *Context and culture in language teaching.* Oxford University Press.
Krashen, S. (1981). *Second language acquisition and second language learning.* Oxford: Pergamon Press.
Krashen, S. (1983). Newmark's ignorance hypothesis and current second language acquisition theory. In S. Gass & L. Selinker (Eds.), *Language transfer in language learning* (pp. 135-153). Rowley, MA: Newbury House.
Lamendella, J. (1977). General principles of neurofunctional organization and their manifestation in primary and nonprimary language acquisition. *Language Learning, 27*, 155-196.
Larsen-Freeman, D. (1983). Second language acquisition: Getting the whole picture. In K. M. Bailey, M. Long, & S. Peck (Eds.), *Second language acquisition studies* (pp. 3-22). Rowley, MA: Newbury House.
Larsen-Freeman, D. & Long, M. (1991). *An introduction to second language acquisition research.* London: Longman.
Lenneberg, E. (1967). *Biological foundations of language.* New York: John Wiley.
Liceras, J. (1985). The role of intake in the determination of learners' competence. In S. M. Gass & C. Madden (Eds.), *Input in second language acquisition* (pp. 354-373). Rowley, MA: Newbury House.

Liceras, J. (1989). On some properties of the "pro-drop" parameter: Looking for missing subjects in non-native Spanish. In S. M. Gass. & J. Schachter (Eds.), *Linguistic perspectives on second language acquisition* (pp. 109-133). Cambridge: Cambridge University Press.

Long, M. (1981). Input, interaction and second language acquisition. In H. Winitz (Ed.), *Native language and foreign language acquisition* (pp. 259-278). Annals of the New York Academy of Sciences, *379*.

Lukmani, Y. (1972). Motivation to learn and language proficiency. *Language Learning, 22*, 261-273.

MacIntyre, P. D. & Gardner, R. C. (1989). Anxiety and second language learning: Toward a theoretical clarification. *Language Learning, 39*, 251-275.

MacIntyre, P. D. & Gardner, R. C. (1991). Methods and results in the study of anxiety and language learning: A review of the literature. *Language Learning, 41*, 125-159.

Madsen, H. S., Brown, B. L., & Jones, R. L. (1991). Evaluating student attitudes toward second-language tests. In E. K. Horwitz & D. J. Young (Eds.), *Language anxiety: From theory and research to classroom implications* (pp. 65-86). Englewood Cliffs, NJ: Prentice-Hall.

Malcolm, I. G. (1987). Continuities in communicative patterns in cross-cultural classrooms. In B. Das (Ed.), *Communication and learning in the classroom community* (pp. 37-63). Singapore: SEAMEO Regional Language Centre.

Masny, D. & d'Anglejan, A. (1985). Language, cognition and second language grammaticality judgments. *Journal of Psycholinguistic Research, 14*, 175-197.

McClelland, D. C., Atkinson, J. W., Clark, R. W., & Lowell, E. (1953). *The achievement motive.* New York: Appleton-Century-Crofts.

McClelland, J. L., Rumelhart, D. E., & the PDP Research Group (Eds.). (1986). *Parallel distributed processing. Explorations in the microstructure of cognition: Vol. 2. Psychological and biological models.* Cambridge, MA: MIT Press.

McLaughlin, B. (1987). *Theories of second language learning.* London: Edward Arnold.

McLaughlin, B. (1990). Restructuring. *Applied Linguistics, 11*, 113-128.

McLeod, B. & McLaughlin, B. (1986). Restructuring or automatization? Reading in a second language. *Language Learning, 36*, 109-127.

Naiman, N., Frolich, M., Stern, H. H., & Todesco, A. (1978). The good language learner. *Research in Education (Series #7).* Toronto: Ontario Institute of Studies in Education.

Oller, J., Baca, L., & Vigil, F. (1977). Attitude and attained proficiency in ESL: A sociolinguistic study of native speakers of Chinese in the United States. *Language Learning, 27*, 1-26.

O'Malley, J. M. & Chamot, A. U. (1990). *Learning strategies in second language acquisition.* Cambridge: Cambridge University Press.

Oxford, R. (1990). *Language learning strategies: What every teacher should know.* New York: Newbury House/Harper and Row.

Pica, T. (1987). Second language acquisition, social interaction, and the classroom. *Applied Linguistics, 8*, 3-21.

Pica, T. (1992). The textual outcomes of native speaker-nonnative speaker negotiations: What do they reveal about second language learning? In C. Kramsch & S. McConnell-Ginet (Eds.), *Text and context: Cross-disciplinary perspectives on language study* (pp. 198-237). Lexington, MA: D. C. Heath.

Pica, T., Young, R., & Doughty, C. (1987). The impact of interaction on comprehension. *TESOL Quarterly, 21*, 737-758.

Rubin, J. (1975). What the good language learner can teach us. *TESOL Quarterly, 9*, 41-51.

Schachter, J. (1983). A new account of language transfer. In S. M. Gass & L. Selinker (Eds.), *Language transfer in language learning* (pp. 98-111). Rowley, MA: Newbury House.

Schachter, J. (1988). Second language acquisition and its relationship to Universal Grammar. *Applied Linguistics, 9*, 219-135.

Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics, 11*, 129-158.

Schmidt, R. (1992). Psychological mechanisms underlying second language fluency. *Studies in Second Language Acquisition, 14*, 357-385.

Schmidt, R. (1993). Awareness and second language acquisition. *Annual Review of Applied Linguistics, 13*, 206-226.

Schmidt, R. & Frota, S. (1986). Developing basic conversational ability in a second language: A case study of an adult learner of Portuguese. In R. Day (Ed.), *Talking to learn: Conversation in second language acquisition* (pp. 237-326). Rowley, MA: Newbury House.

Schumann, F. & Schuman, J. (1977). Diary of a language learner: An introspective study of second language learning. In H. Brown, C. Yorio, & R. Crymes (Eds.), *On TESOL '77* (pp. 241-249). Washington, DC: TESOL.

Scovel, T. (1988). *A time to speak: A psycholinguistic inquiry into the critical period for human speech.* New York: Newbury House/Harper and Row.

Seliger, H. W. (1984). Processing universals in second language

acquisition. In In F. R. Eckman, L. H. Bell, & D. Nelson (Eds.), *Universals of second language acquisition* (pp. 36-47). Rowley, MA: Newbury House.

Selinker, L. (1992). *Rediscovering interlanguage*. London: Longman.

Sharwood Smith, M. (1985). From input into intake: On argumentation in second language acquisition. In S. M. Gass & C. Madden (Eds.), *Input in second language acquisition* (pp. 394-404). Rowley, MA: Newbury House.

Sharwood Smith, M. (1991). Speaking to many minds: On the relevance of different types of language information for the L2 learner. *Second Language Research, 7*, 118-132.

Singleton, D. (1989). *Language acquisition: The age factor*. Clevedon: Multilingual Matters.

Snow, C. (1983). Age differences in second language acquisition: Research findings and folk psychology. In K. M. Bailey, M. Long, & S. Peck (Eds.), *Second language acquisition studies* (pp. 141-150). Rowley, MA: Newbury House.

Spolsky, B. (1989). *Conditions for second language learning*. Oxford: Oxford University Press.

Sridhar, K. K. & Sridhar, N. (1986). Bridging the paradigm gap: Second language acquisition theory and indigenized varieties of English. *World Englishes, 5*, 3-14.

Stern, H. H. (1984). *Fundamental concepts of language teaching*. Oxford: Oxford University Press.

Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In S. M. Gass & C. Madden (Eds.), *Input in second language acquisition* (pp. 235-253). Rowley, MA: Newbury House.

Tannen, D. (1992). Rethinking power and solidarity in gender and dominance. In C. Kramsch & S. McConnell-Ginet (Eds.), *Text and context: Cross-disciplinary perspectives on language study* (pp. 135-147) Lexington, MA: D. C. Heath.

Tarone, E. (1977). Conscious communication strategies in interlanguage. In D. H. Brown, C. Yorio, & R. Crymes (Eds.), *On TESOL '77* (pp. 194-203). Washington, DC: TESOL.

Thomas, J. (1983). Cross-cultural pragmatic failure. *Applied Linguistics, 4*, 91-112.

Tobias, S. (1986). Anxiety and cognitive processing of instruction. In R. Schwarzer (Ed.), *Self-related cognition in anxiety and motivation* (pp. 35-54). Hillsdale, NJ: Erlbaum.

Tollefson, J. W. (1991). *Planning language, planning inequality*. London: Longman.

Tucker, G. & Lambert, W. (1973). Sociocultural aspects of language study. In J. Oller & J. Richards (Eds.), *Focus on the learner*. Rowley, MA: Newbury House.

van Lier, L. (1991). Inside the classroom: Learning processes and teaching procedures. *Applied Language Learning, 2*, 29-69.

VanPatten, B. (1990). Attending to content and form in the input: An experiment in consciousness. *Studies in Second Language Acquisition, 12*, 287-301.

VanPatten, B., & Cadierno, T. (1993). Input processing and second language acquisition: A role for instruction. *Modern Language Journal, 77*, 45-57.

Wenden, A. (1991). *Learner strategies for learner autonomy*. London: Prentice-Hall International.

White, L. (1990). Second language acquisition and universal and grammar. *Studies in Second Language Acquisition, 12*, 121-133.

Widdowson, H. G. (1983). *Learning purposes and language use*. Oxford: Oxford University Press.

Wolfson, N. (1989). *Perspectives: Sociolinguistics and TESOL*. New York: Newbury House/Harper and Row.

Wong-Fillmore, L. (1989). Language learning in social context: The view from research in second language learning. In R. Dietrich & C. Graumann (Eds.), *Language processing in social context* (pp. 277-302). Amsterdam: Elsevier.

Zobl, H. (1985). Grammar in search of input and intake. In S. Gass & C. Madden (Eds.), *Input in second language acquisition* (pp. 329-344). Rowley, MA: Newbury House.

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