Incidental learning in second language acquisition

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[Title] Incidental Learning in Second Language Acquisition

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[Main text]

The term incidental learning is used, in applied linguistics, to refer to the acquisition of a word or expression without the conscious intention to commit the element to memory, such as "picking up" an unknown word from listening to someone or from reading a text.

Imagine someone asked you to describe the living room of a house you have often visited, such as the house of your best friend. You will probably have no difficulty in describing the room and the items in it, in great detail, although it is unlikely that you ever made a deliberate attempt to remember as much of this room as you can. You will probably have no difficulty either remembering the room of the hotel you were staying in, for a single night, a couple of weeks ago. But it is unlikely you will remember the room of the hotel where you spent a night three years ago. These examples illustrate, in an informal way, what is usually meant when researchers say that people "incidentally learn" or "pick up" factual knowledge, such as words, names, dates, events, descriptions or explanations, seemingly without effort.

Incidental learning stands in contrast to intentional learning, which refers to a deliberate attempt to commit factual information to memory, often including the use of rehearsal techniques, like preparing for a test in school or learning a song by heart.

History of the terms incidental and intentional learning
The terms incidental and intentional learning were originally used in the middle of the 20th century in the hey-day of American behaviorist psychology, conceptualizing learning in terms of stimulus-response contingencies (Postman & Keppel, 1969). Researchers experimentally investigated human learning by providing human subjects with information (such as a list of words) under two conditions. In the intentional condition, subjects were told in advance that they would afterwards be tested on their recollection of the materials to which they were going to be exposed. Subjects in the incidental condition were not told that they would be later tested. Thus, originally, the terms incidental and intentional learning referred to a methodological feature of learning experiments, pertaining to the absence or presence of a notification whether subjects would be tested after exposure. Later, psychologists used incidental-learning experiments in combination with different orienting tasks. For instance, Hyde and Jenkins (1973) asked subjects to rate each word in a word list as to their pleasantness (a semantic orienting task) or to record the part of speech of the words (a nonsemantic orienting task). When subjects were later given a surprise recall task (i.e., in an incidental-learning setting), subjects in the semantic condition were able to recall more words than those in the nonsemantic condition.

Bransford, Franks, Morris, and Stein (1979), introduced the notion of *transfer-appropriateness* to explain why they found, in a learning experiment involving word lists, that

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participants who had been administered compatible learning and recall tasks (semantic-semantic, or nonsemantic-nonsemantic) achieved higher retention scores than participants who were given incompatible learning and recall tasks (semantic-nonsemantic, or nonsemantic-semantic).

The notion of transfer appropriateness may help to illustrate the difference between incidental and intentional learning. Thus, as participants in an intentional vocabulary learning task are told in advance that they will be tested after the learning phase, they will try to store the to-be-learned word information in a form perceived as transferable to the test situation. In contrast, processing instructions during the learning phase in an incidental learning setting may or may not be conducive to successful transfer to the test situation. For instance, participants in an incidental learning vocabulary learning experiment who are instructed to pay attention to the meaning of some new words which appear in a reading text are likely to perform much better on an unexpected receptive posttest than on an unexpected productive posttest.

The notion of transfer-appropriateness also underscores the crucial importance of the instruction (in learning experiments often called the orienting task) because the instruction is the instrument with which the researcher or teacher can control or manipulate students' attention to the information to be learned.

In 1972, Craik and Lockhart proposed the depth-of-processing theory, claiming that the chance that some piece of information will be stored in long-term memory is not determined by the length of time that it is held in short-term memory but rather by the shallowness or depth with which it is initially processed. This theory has survived, in adapted form, until the present day (Lockhart & Craik, 1990; Craik, 2002). Laufer and Hulstijn (2001) used Craik and Lockhart's depth-of-processing theory to formulate their involvement hypothesis for second-language vocabulary learning. Laufer and Hulstijn (2001) proposed the notion of *involvement*, consisting of (i) a motivational component, comprising the *need* to determine a new word's meaning, and (ii) a cognitive component, comprising *search* (e.g., dictionary look up) and *evaluation* (e.g., evaluating whether the information obtained from the dictionary applies to the verbal and non-verbal context). Retention of hitherto unfamiliar words is claimed to be conditional, in general, upon the degree of involvement in processing these words. (For a detailed account of the history of the terms incidental and intentional learning, see Hulstijn, 2001; 2003.)

Incidental and intentional learning versus implicit and explicit learning

In the applied-linguistics literature, the terms incidental and intentional learning are sometimes used in connection with the terms implicit and explicit learning. Although the meanings of incidental and implicit learning and the meanings of intentional and explicit learning overlap, they refer to different constructs in different domains of inquiry. The terms implicit and explicit learning are used in current theories of second language acquisition (and in cognitive science in general) to refer to, respectively, the unconscious and conscious learning of facts or regularities in the input materials to which subjects in learning experiments are exposed. In second-language acquisition studies, the regularities usually pertain to grammatical phenomena (e.g., a morpho-syntactic rule). Implicit knowledge is believed to be spread out over various regions of the neocortex, while explicit knowledge is assumed to reside in a particular area of the brain (the medial temporal lobe, including the hippocampus), independent of the areas where implicit knowledge resides. In this (neuro)cognitive domain of scientific inquiry, implicit and explicit learning are sometimes said to take place incidentally and intentionally, but the latter two labels do not play a crucial role in theoretical accounts of learning, simply because the behaviorist learning theories of the previous century have lost their prominent role. In contrast, the terms incidental and

intentional learning are still being used in the vocabulary-learning literature, albeit not associated to current cognitive or neurocognitive theories of the processing mechanisms involved in learning or the locus of learned information (Hulstijn, 2005). See also: implicit and explicit second language acquisition.

Word knowledge
Before considering several factors affecting vocabulary learning, whether incidental or intentional, it is important to properly understand what it means to know a word.
A lexical entry in the mental lexicon of the average adult, literate, native speaker contains a number of semantic features (its core meaning or meanings, its pragmatic and stylistic meanings, and the collocations in which it frequently occurs) and a number of formal features (its grammatical word class, its morpho-phonological make up, its auditory and articulatory phonetic forms, and its orthographic shape). The features of a lexical entry are intrinsically or associatively related to each other and to features of other entries, even across language boundaries (involving translation equivalents in another language) while the strength of these relationships may vary (Meara, 2009). Generally, the most difficult association for a first or second-language learner to acquire, is the association between the word's core meaning and its phonological form because, for a large majority of so called base words (mono-morphemic words), the association is completely arbitrary (e.g., Why is a dog called 'dog' and not 'cat' or 'table' or 'sanon?).

The acquisition of a large vocabulary
Although estimation figures differ, it is safe to say that adolescent native speakers of English who have completed high school, have a receptive vocabulary of at least 20,000 base words (i.e., words without the inflectional forms, derivations or compounds that can be made of it, such as 'open', but not 'opened', 'opener' or 'door opening') (Nation, 2001). The accepted view is that they cannot have learned such a large number of words solely by means of explicit vocabulary instruction. Rather, they must have learned most words in an incremental way through repeated encounters through listening and reading. Furthermore, even though many words (in L1 and L2) are learned intentionally in the context of the school curriculum, not all words learned intentionally will be remembered for ever. In general then, several interrelated questions need to be answered. First, if it is true that most of the information stored in people's memories has been "picked up" incidentally, how do we explain this phenomenon of incidental learning? Why do people not pick up *all* information to which they have been exposed? Second, why do people not retain all information that they have learned intentionally? In a nutshell, the answers to these questions read as follows. Learning, whether incidental or intentional, is mainly a matter of selective attention and elaborated processing, or, as Eysenck (1982, p. 203) put it: "memory performance is determined far more by the nature of the processing activities engaged in by the learner than it is by the intention to learn per se". In other words, a critical feature of human memory appears to be *how* one processes information and not whether one processes information with or without the intention of remembering (Baddeley, 1997; Craik, 2002). Rich, elaborate processing, however, is not enough either. New information will seldom leave a lasting trace in memory if not frequently reactivated, what Baddeley (1997: 123) called `elaborative rehearsal', involving the formation of connections between the new information and information already known. In the case of learning a new word, processing of it in different contexts will create and strengthen its links with other words in the mental lexicon, increasing its recall. What we commonly call 'forgetting' is mainly a matter of not frequently using information, whether picked up incidentally or learned intentionally. This fact is succinctly expressed by the common phrase "use it or loose it". In conclusion, asking the question of whether people with large

vocabularies have acquired the words in it incidentally or intentionally is not instrumental to explaining people's success in the acquisition of large vocabularies. While the absence or presence of a learning intention does not play a decisive role, vocabulary acquisition is first and foremost determined by the nature and frequency of the processing of new words.

Consequently, the recommendation of massive reading and listening activities and the discouragement of intentional vocabulary learning is based on an ill-informed understanding of the terms incidental and intentional learning. Incidental vocabulary learning is not necessarily more effective than intentional learning nor is intentional vocabulary learning more effective than incidental learning. Incidental acquisition-through-reading is a slow and error-prone process with small vocabulary gains (Laufer, 2005; Nation, 2001; Read, 2004; Brown, Waring & Donkaewbua, 2008). Readers do not always notice unfamiliar words when reading a text. If they do, guessing the meaning is not always possible. Moreover, many people possess poor inferencing skills. Thus an incidental task (i.e., a task without forewarning that a retention test will follow) allowing learners to process new vocabulary only superficially or even skip new words altogether will produce little knowledge of new words. In contrast, one could think of an intentional task (i.e., a task with forewarning of an upcoming retention task) forcing learners to process new vocabulary elaborately (e.g., `read the following text, look up the meaning of any words you don't know in your dictionary, summarize the text's contents in about five sentences, and learn the new words looked up. You will later be tested on your knowledge of the words in this text'). The last ten years have witnessed the publication of dozens of studies (e.g., Peters, Hulstijn, Sercu and Lutjeharms, 2009), giving empirical evidence for the claim that the low incidence of vocabulary acquisition through reading ("input only") can be substantially boosted by techniques that make students *look up the meaning of* unknown words, *process* their form-meaning relationship *elaborately*, and process them *again* after reading ("input plus").

[Cross-references]
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Vocabulary Acquisition in Second Language Acquisition (408)
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[Suggested Readings]