

inductive learning, induction PSYCHOLOGY (p. 102)

Induction is the process of working out rules on the basis of examples. It is also called *discovery learning*. It contrasts with **deductive learning**, in which learners are presented with rules which they then go on to apply. Because inductive learning is thought to be the way that the rules of one's first language are internalized, it has been a core principle in such 'natural' methods as the **direct method** and **audiolingualism**. More recently, the use of inductive procedures to work out rules from data has been promoted as a means of **consciousness-raising**. It is thought that the mental effort invested by learners in working out rules for themselves pays dividends in terms of the long-term memory of these rules. In an inductive approach, learners might be given

successive examples of a grammar item (or two contrasted items), and then be challenged to work out a rule for the use of the item(s). For example, to help learners work out the difference between *for* and *since*, they are given these examples:

1. I have been here since six o'clock.
2. Tom and Anna have been married for six years.
3. It hasn't rained since last September.
4. I've been waiting here for nearly an hour.
5. We last met at a conference but I haven't seen her since then.
...etc.

At various points, learners can be asked to formulate a rule. Or they can complete further examples in order to test their grasp of the rule.

So as to speed up the process of hypothesis formation, and to steer learners away from making a wrong hypothesis, the teacher can guide the learners by asking leading questions, such as *Is 'six o'clock' a point in time, or a period of time?* (see **concept questions**). This approach, where the teacher or the materials writer intervenes in the induction process, is called *guided discovery*. The rules themselves can be left unstated (in which case, the approach is an *implicit* one). Or, by asking learners to state the rules, they can be made *explicit*. One advantage of an inductive approach over a deductive one is that it can help develop learners' capacity for autonomous learning. Also, the rules are more likely to 'stick' if they have required mental effort. On the other hand, there is a risk that learners might formulate the wrong rule. This is one reason for asking them to state their rule. Also, inductive approaches tend to favour learners who like working out language puzzles, as opposed to those who prefer simply to be told (see **learning style**). Many learning materials for classroom use encourage an inductive approach to grammar learning, on the assumption that teachers are present to guide the process. But those designed for self-study – such as self-study grammars – usually adopt a deductive approach.

scaffolding SLA (p. 201)

Scaffolding is the temporary support that surrounds a building under construction. The term is used metaphorically to describe the temporary *interactional* support that is given to learners while their language system is 'under construction'. It is this support – from teachers, parents or 'better others' – that enables them to perform a task at a level beyond their present competence. The term derives from **sociocultural learning theory**, which views learning as being jointly constructed. Scaffolding is an integral part of this model. In **first language acquisition** it has been observed that children, even at an early age, are able to participate in conversations because of the verbal scaffolding provided by their caregivers. Here, for example, a two-year-old child responds to the fact that the central heating boiler has just been ignited:¹

Mark	Oh popped on
Mother	Pardon?
Mark	It popped on
Mother	It popped on?
Mark	Yeah
Mother	What did?
Mark	Er - fire on
Mother	The fire?
Mark	Yeah ... Pop the ... fire popped it fire
Mother	Oh yes. The fire popped on, didn't it?

By asking questions, and by repeating, reformulating and extending the child's utterances, the mother draws the child out. As the child's ability to handle the skills of conversation increases, the adult's support and control will gradually be withdrawn.

Scaffolding not only provides a conversational framework, but it is believed to shape language acquisition itself. In the example above, the child is prompted to modify his original utterance (*popped on*) to *it popped on* and then *the fire popped*, bringing it step-by-step closer to the target *the fire popped on*. This incremental accumulation of grammar over several assisted *turns* is called *vertical scaffolding*.

Similar processes are believed to occur in second language learning. The scaffolding is provided by teachers and also by peers. Experienced teachers know how to draw learners out and to engage them in conversation. At the same time, they know when it is appropriate to withhold such support.

¹from Wells, G. *Learning through interaction*. CUP, 1981