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:

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.

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