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INFORMAL EDUCATION AND LEARNING PROCESSES¹

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The term 'education' often refers only to schooling, both in common parlance and in the documents of international organizations and NGOs, as well as in the academic world of educational sciences. In this chapter, however, we will deal with education in a much wider acceptance, namely all aspects of cultural transmission. Schooling is of course part of that, but education also includes informal learning, resulting from enculturation and socialization, that is, it proceeds informally in everyday situations, either through observation and imitation or active inculcation. As Bruner (1996: ix) remarks: '... schooling is only one small part of how a culture inducts the young into its canonical ways. Indeed, schooling may even be at odds with a culture's other ways of inducting the young into the requirements of communal living.'

On the dimension of formal to informal, Ahmed (1983) distinguished the following categories of education:

1. Formal education or schooling.
2. Non-formal, or out-of-school education, which includes all educational programs aimed at those left out of formal education (very young children, the discards of the school system, young people in post-primary education, non-literates, and so on).
3. Informal education, which may also be called 'traditional' education. In contrast with the first two, it is neither provided nor directed by governmental or non-governmental institutions.

This chapter deals with the third category, referring to the other two only as a contrast. Note that we first have to dispose of a problem of vocabulary: 'traditional' education may wrongly suggest that this type of education is linked to the past, that it is no longer being practiced, or then only in traditional, for example, rural, sectors of society. This is not at all what is intended, and hence I prefer to speak of 'informal' education. But that label may also be misunderstood: it may wrongly suggest that this education does not have any form, that it is unstructured and haphazard. As we will shortly see, that is not at all the case: there is distinctly an informal pedagogy, although it often remains implicit and even those who practice it are not conscious of it. To describe this informal pedagogy, detailed ethnographic (observational) research is needed.

These problems of definitions have led Montandon (2005) to suggest that the distinction formal/non-formal/informal should be abandoned, if only because it implies that schooling is the norm with which the other forms are compared. She proposes much more complex theoretical schemes, such as a profile of each type of education on a list of 28 variables, which is not all that different from the schemes of Désalmand (1983) or Greenfield and Lave (1982) presented below, or a typology derived from the cross-table of contexts and contents. While acknowledging the complexity of the issue, I will nevertheless continue to use the term 'informal' for the remainder of this chapter.

There is an abundant literature on traditional education in numerous societies, often dating back to the middle of the 20th century, as part of ethnographic monographs, and in particular in the 'culture and personality' school of American cultural anthropology. It would be beyond the reach of this chapter to review this extensive literature. As good examples, I think of Jomo Kenyatta (1965) who studied anthropology with Malinowski long before becoming the first president of Kenya, or Myer Fortes (1938) in Nigeria, and, among more recent publications, Lancy (1996) about the Kpelle of Liberia, Chamoux (1981, 1986) among the Nahua of Mexico, or Delbos and Jorion (1984) in France². Traditional education also includes institutions that are quite formalized, such as initiation ceremonies, and instruction provided in age-grade societies and secret societies. Erny (1981) has provided an excellent overview of the various strands of ethnography dealing with traditional education. One way to summarize this material might be to conclude that traditional

education, in contrast to schooling, is in essence adapted to the local cultural system, which it tends to perpetuate.

Désalmand (1983) pointed out the major characteristics of traditional African education as compared to schooling. Traditional education is provided everywhere, all the time, and by everyone (in contrast to occurring in a specialized place, at a specific time, with specialized personnel), it is closely tied to the environment, integrated with productive work, and addresses the needs of the society. It emphasizes cooperation rather than individual competition, and everyone is allowed to be successful at it (as opposed to the elitism of schools, with their selection and streaming roles). In traditional education, parents and elders play an important role; relations among participants are personalized and occur in the local language. Traditional education has a broad character, and includes moral and spiritual aspects as well as physical education and manual labour.

A similar typology was elaborated by Greenfield and Lave (1982): Informal education is embedded in daily life, with teachers being relatives, but the responsibility for learning lies with the learners, their motivation stemming from the social contribution they are able to make and their participation in the adult community of practice. Observation and imitation are the main learning processes, and demonstration (without verbal exchange or questioning) the predominant teaching procedure. The maintenance of continuity and traditions is the primary goal of informal education.

Greenfield and Lave point out that in instances where informal education transmits specific, economically-useful knowledge, particularly knowledge tied to crafts and occupations, it can include a very structured, albeit implicit, pedagogy. This was demonstrated in a study of weaving apprenticeship among Zinacanteco girls in Mexico (Greenfield and Childs, 1977; Childs and Greenfield, 1980). The mothers, although claiming in interviews that they did not do anything to teach their daughters, employed mainly scaffolding, which implies quite a sophisticated even if unconscious pedagogy: the mother has to constantly assess the learner's level of skills, so as to adapt her intervention.

Greenfield and Lave (1982) distinguish three types of processes: (a) trial and error, (b) shaping, and (c) scaffolding. In the trial and error process, learners are confronted by a new situation constituting a conflict with what they already know. They have to try different approaches, and usually succeed only after making successive adjustments.

According to Piaget, this process should lead to conceptual knowledge. In this type of learning, motivation is seen as internal to the learner. Conflict and making errors are seen as positive features, leading to progress.

Shaping is a process where the learner's responses are controlled by a teacher, who organizes problems according to a sequence of small steps designed, as much as possible, to avoid errors. Correct responses are reinforced by external rewards. Much of schooling, and particularly, programmed learning is of this type.

Learning by scaffolding also involves an adult, and also tries to avoid errors, but the whole task (too difficult to be managed by the novice alone) is presented immediately in its entirety. The expert provides support to the novice, intervening, even taking the apprentice's place, when some step appears to be too difficult. Scaffolding therefore involves continuously assessing the ability level of the learner. The expert's intervention diminishes in the course of the apprenticeship until it is no longer needed. Scaffolding allows the novice eventually to do alone what at the beginning could be done only with help from the expert. Thus, scaffolding is an instructional process which always involves social interaction. It illustrates Vygotsky's concept of a 'zone of proximal development'.

Greenfield (1984) proposed that the concept of learning by scaffolding characterizes especially those situations where the economic stakes are high. By contrast, where cost doesn't matter, as in many school-based situations, trial-and-error learning is more common. Shaping can be combined with either of the other learning processes. Learning by observation and imitation, and especially through scaffolding is congruent with a value system oriented towards the maintenance of traditional ways. In contrast, trial-and-error learning is found where innovation is valued more.

These predictions were confirmed in a long-term longitudinal study when Greenfield (2004) returned to the same Zinacantec Maya community in Mexico twenty-one years after her initial study of weaving apprenticeship. The girls had become mothers, who in turn had daughters who were learning to weave. But the learning processes, Greenfield found, had changed substantially in many families: girls were often learning much more by themselves, by trial and error, only calling for help when they deemed it necessary. Mothers were often busy with their own work, and were not providing any direct scaffolding. In other words, the Zinacantec teaching/learning style has changed from Vygotskian to Piagetian!

This change in learning processes went along with extensive social change. In the intervening years, the community had started transport companies and developed much more frequent contacts with the town of San Cristobal, and even contacts with Mexico City. Woven artefacts produced in the village were being sold there, both to foreign and Mexican tourists. Although still based on the traditional patterns, they were now made of commercially produced thread of many different colours, and the women were competing in inventing new styles of decorations, or copying them from books. Errorless learning had become less essential, since thread had become cheaper. The changes in weaving apprenticeship from more scaffolded to more independent trial-and-error learning was concentrated in families where mothers and daughters were more involved in textile-related commerce (Greenfield et al. 2003).

Would this change in the learning styles also produce changes in cognitive processes? Greenfield's longitudinal study also dealt with this question.

COGNITIVE EFFECTS OF INFORMAL EDUCATION: THE PROBLEM OF TRANSFER

As a cross-cultural psychologist, specializing in cognitive development, I have been concerned with the topic of 'culture and cognition' (Dasen, 1993; Mishra, 1997; Segall et al., 1999). Within that vast topic, the question of cognitive variations produced by literacy and schooling, as opposed to informal education, has been a main concern (Mishra and Dasen, 2004). Summarized in a nutshell, the conclusions of empirical cross-cultural research are that literacy per se has only a limited impact (Scribner and Cole, 1981; Berry and Bennett, 1992), while Western type schooling produces a 'theoretic' cognitive style, by which schooled individuals are willing to reason on purely hypothetical contents, as opposed to the 'empirical' style, where the premises have to correspond to social reality (Scribner, 1979; Tapé, 1994). In other words, schooling does not produce new or different cognitive processes, but allows their application to a wider range of contexts.

The theoretic cognitive style comes close to what psychologists call 'transfer', namely the ease with which a skill learned in one context can be generalized, that is, used in other, novel situations. There has been much controversy about 'transfer', the general conclusion

being that informal education tends to produce contextualized knowledge, or in Hatano's (1982) terminology, procedural rather than conceptual knowledge.

In their first study of learning to weave among Zinacanteco girls, Greenfield and Childs (1977) explored the cognitive effects of weaving on the representation of patterns. The lack of generalization from weaving to these test situations demonstrated the specificity of this kind of know-how, at least in cultural contexts in which innovation is not valued. In the follow-up study, Greenfield (2004) repeated the experiment in which weavers and non-weavers were asked to represent designs with sticks, both copying existing traditional patterns and expanding novel designs. The results showed that the stages of cognitive development had remained the same over the generations, but that girls now tended to use more abstract representations. This could have been due to the change in teaching/learning processes from scaffolding to trial and error, and/or to the effects of schooling.

Among many other studies of weaving in traditional settings (for example, Chamoux, 1981; Rogoff, 1990), Rogoff and Gauvin (1984) examined the transfer of this skill among adult Navajo women. Weaving skill was the best predictor of performance on a task resembling weaving (continuing a woven pattern) but not for other tasks (continuing a pattern with pipe cleaners, or in a multiple choice format). Schooling contributed little. The overall conclusion was that transfer was rather limited both for everyday skills and for schooling.

Different conclusions come from a study of the generalization of schooling and weaving skills among Dioula young men in Côte d'Ivoire (Tanon, 1994). The study included weavers and non-weavers, both schooled and unschooled. The training of young boys as weavers starts at ten to twelve years. Scaffolding is used for the beginning of the practice, the setup of the warp, and the production of the first large cloths, where mistakes would be difficult to correct and hence have financial consequences. Trial and error is used in the weaving of more complex patterns or innovative designs that can be easily corrected if noticed immediately. At the beginning, boys slide into the father's loom during his absence, and try to weave. When the father returns and notices it, he asks around 'Who sat to weave on my loom?', and he corrects the mistakes. This little game goes on until the father no longer notices any difference in the weaving. At that

time, the boy receives his own loom, and the apprenticeship continues. Among the Dioula, the invention of new patterns is highly valued, the weavers are organized in a cooperative, and are active in selling their products, especially to tourists.

Tanon devised two tasks of planning skills, one involving pattern matching based on either traditional or commercial cloths, and one involving the loading and unloading of passengers and luggage in a small bus (taxi van). Loading had to be done taking into consideration the order in which the passengers would disembark at various stops. Both weaving and schooling had significant effects on planning skills in both tasks and the schooled weavers had the best performance overall. On the taxi van task, the weavers did better than the non-weavers, in particular in carrying the planning task to the end. In this case, the control procedures that allow planning, stressed in strip weaving, transferred to a new task, unrelated to weaving.

A series of studies carried out in Recife, Brazil (Nunes et al., 1993) demonstrated transfer in proportional reasoning among minimally-schooled adults, who use it in the practice of their craft. For example, Brazilian foremen with little or no schooling, observed on building sites, are capable of calculating proportions by using unfamiliar scales (for example, $1/40$ while they normally use $1/100$). A similar result was found with fishermen, who were accustomed to using proportional reasoning for price calculation and for estimating the proportions of processed to unprocessed fish and shellfish. The problems given to them required that they invert the normal procedures: they had to calculate the unit price from the price of a large amount or calculate the amount of fish that had to be caught in order to obtain a given weight of filets. Again, performance was not correlated with amount of prior schooling (which varied from one to nine years). Nunes, Schliemann, and Carraher (1993) concluded from this whole set of studies that everyday activities foster the development of transferable, flexible knowledge, which is conceptual and not merely procedural.

On the other hand, Schliemann and Acioły (1989) found that illiterate lottery bookies could not transfer their experience of permutations to other structurally similar problems, such as working out the permutations of colours or of letters, while those who had nine or more years of schooling could do so. The illiterate ones justified their refusal in ways very similar to the unschooled Vai in Scribner's (1979) study of syllogistic reasoning, namely that they could not deal

with letters because they had not learned to read. This 'empiric' cognitive style hence is a serious limitation to the transfer of existing cognitive processes to new situations.

What may we conclude from the various studies of transfer in informal education? We seem to have a contradiction between a series of studies showing that everyday cognitions are most often tied to the context in which they are usually applied, and other research that show evidence of transfer. Schliemann, Carraher, and Ceci (1997: 202) conclude that

Everyday activities do promote the development of conceptual knowledge rather than only procedural knowledge for specific problems. As such, knowledge acquired in specific everyday activities does transfer to other activities, but this is more likely to occur for those subjects who also benefited from school instruction.

For those studies that did not find transfer, the test situations were often artificial (for example, 'weaving' with wood sticks or pipe cleaners, choosing designs in a multiple-choice format) and were therefore inherently strange. Might not transfer be more easily demonstrated in situations that are new, but, at the same time, not so foreign, such as those used in some of the Recife studies? As regards knowledge acquired in formal schooling, even if it is more open to generalization than everyday cognition, it, too, has limits and is, in a certain sense, contextualized. Increasingly, school (and the laboratory) is seen as simply another context for learning, with its own specific cognitive outcomes. School knowledge can also be more procedural than conceptual, that is, it is closely linked to the conditions in which it was acquired (Delbos and Jorion, 1984).

GUIDED PARTICIPATION IN CULTURAL ACTIVITY

Rogoff, Mistry, Göncü and Mosier (1993) observed caregivers, usually mothers, and their toddlers in four different settings: Mayan Indians in a small town in Guatemala, a tribal village in India, and two middle class urban neighbourhoods in Turkey and United States. They found both similarities across communities in the process of guided participation, the way caretakers structure children's participation in activities, and differences in how this occurs. In the first two communities, children were non-verbally encouraged to

observe ongoing adult activities, but they were basically responsible for their own learning. In the two middle class settings, mothers tended to structure explicitly their children's learning, used verbal interactions and provided 'lessons' removed from the context of ongoing activities. These mothers also tended to organize their schedule so as to separate adult activities from time devoted to interacting with children. In the other two communities, adults shared their attention among a variety of activities, managing several tasks at the same time, including socializing with other adults and facilitating the children's involvement and learning.

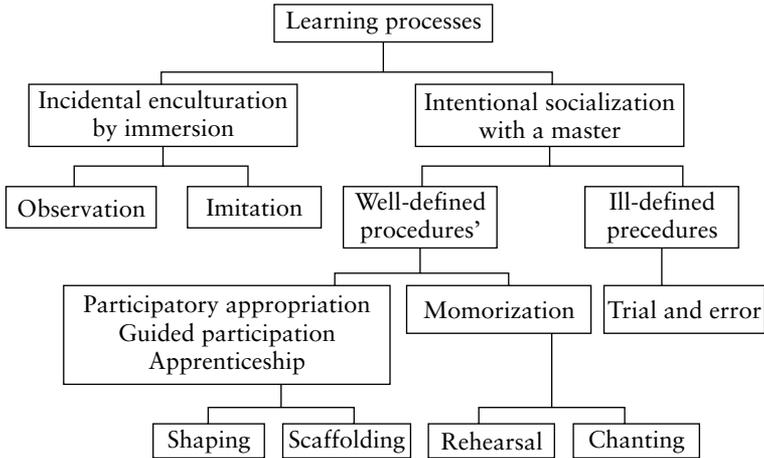
The learning style of the middle class mothers can be seen as a preparation for schooling. Rogoff et al. (1993) however suggest that many school reforms move in the direction of group work in which the children become more responsible for their own learning. The teacher's role changes 'from the inculcation of skills out of the context in which they are actually used to communicate or to solve problems to the practice of literate activities in the context of communicating and solving problems'. (p.160). This is close to Stevenson's (1994) portrait of the teacher in many Asian schools:

The East-Asian teacher acts as a knowledgeable guide. Indeed, the two characters in the Japanese term for teacher (*sensei*) mean 'living or being before'—one who has had the experience and now can guide others through it. The teacher is not a lecturer but nevertheless knows what should be learned and the types of techniques that will lead children to learn. The teacher does not act as an authoritarian dispenser of knowledge and judge of what is correct but leads children to construct knowledge and evaluate the reliability of their own and other solutions. (Stevenson, 1994: 320)

A SUMMARY OF TEACHING AND LEARNING PROCESSES

Figure 1.1 depicts the different learning and teaching processes that we have discussed, combining elements from Chamoux (1981), Greenfield (1984) and Strauss (1984). On the left side of the figure are the mechanisms that tend to predominate in informal education (observation, imitation) and on the right side those of formal education (trial and error). But the processes do not divide cleanly across the informal/formal dichotomy. Chanting, a technique in which memorization is helped by rhythmic body movements, is characteristic

Figure 1.1: Learning/teaching processes in formal and informal education



Source: Modified from Segall et al., 1999, Figure 6.2, p. 192

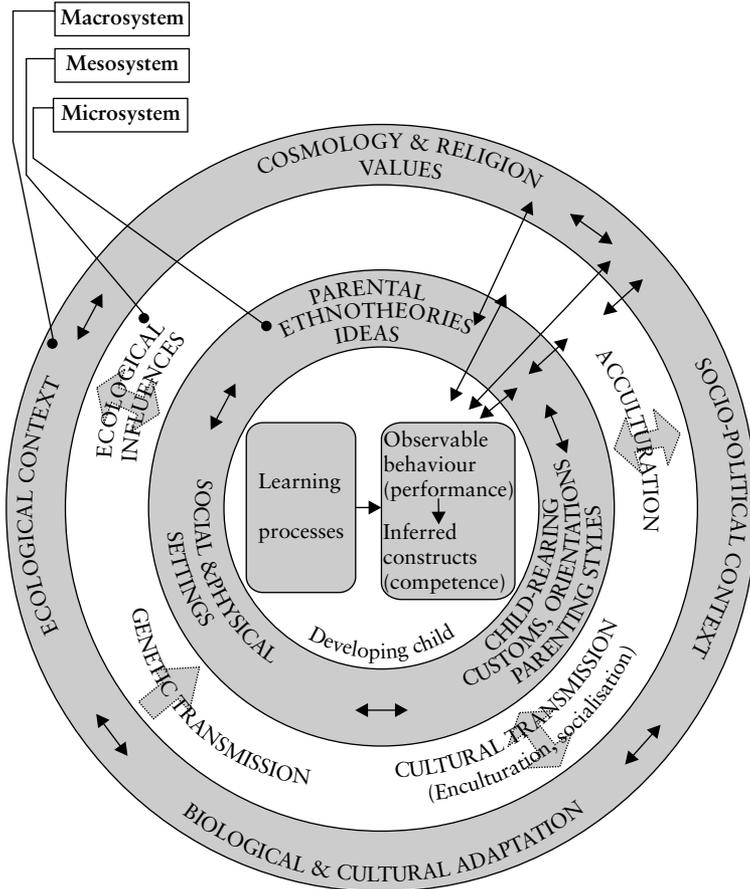
of formal, traditional education, such as religious schooling (see in this volume the chapters by Akkari; Changkakoti and Broyon; Mishra). The distinction between well-defined and ill-defined procedures (Strauss, 1984) does not imply a value judgement, but derives from studies on artificial intelligence and problem solving. Well-defined procedures are those in which the necessary information is fully laid out, and the steps to be taken and goals to be attained are completely specified, while in ill-defined procedures, the learner is confronted with uncertainty, which requires proceeding by trial and error.

Cultural differences with respect to these learning processes consist primarily of the degree to which they predominate in any particular setting, and not in the presence or absence of any one process. The differential frequency of settings itself characterizes different societies.

AN INTEGRATED THEORETICAL FRAMEWORK FOR INFORMAL EDUCATION AND HUMAN DEVELOPMENT

Education defined as the process of cultural transmission can be placed within a larger theoretical framework of human development, presented in Figure 1.2.

Figure 1.2: An integrated theoretical framework for the cross-cultural study of human development



Source: Slightly modified from Dasen, 2003.

This integrated theoretical framework (Dasen, 2003) is in fact a composite of several more specific frameworks that I have found useful over the years, starting with Berry’s eco-cultural framework that has been the backbone of our textbooks of cross-cultural psychology (Berry et al., 2002; Segall et al., 1999). Especially relevant to informal education is the ‘developmental niche’ of Super and

Harkness (1997; see also Bril, 1999), that will be detailed below. The integrated framework uses the concentric circles of Bronnfenbrenner's (1989) ecological systems theory and its adaptation by Georgas (1988), who adds potential interactions between various levels. Other useful theoretical frameworks have been provided by Ogbu (1981), Kagitçibasi (1996) and Trommsdorff (1999), and discussions of these models appear in Gardiner, Mutter and Kosmitzki (2005) and Rogoff (2003).

The theoretical framework of the developmental niche, proposed by Super and Harkness (1986, 1997; Harkness and Super, 1996) is a means for integrating findings from psychology and anthropology. Traditionally, developmental psychology tended to study the child out of socio-cultural context, while cultural anthropology emphasized the context per se and the already socialized adult. The synthesis of these two approaches is to make the child in its context the unit of analysis.

At the centre of the developmental niche is the individual child, with his or her particular set of inherited dispositions, like temperament. Surrounding the child, there are three components or subsystems:

1. The settings, or physical and social contexts in which the child lives;
2. The customs, or culturally-determined rearing and educational practices;
3. The psychological characteristics of the caretakers, including the parental ethnotheories of child development.

The developmental niche is a system in which the component parts interact and function in coordinated fashion. Typically there is consonance among the elements of the niche, especially under conditions of stability in society, but sometimes there are also inconsistencies, especially under the impact of social change and acculturation. Moreover, it is an open system where each component is linked with other aspects of the more general environment. Super and Harkness (1986, 1997) explain that the organism and the developmental niche adapt to one another. Thus, as the individual adapts to its surroundings, the niche also adapts to the individual. Certain maturational changes in cognition and personality determine the expectations that adults have with respect to children of different ages. The developmental niche thus changes itself in the course of ontogenesis.

Physical and social settings

Concerning the first component, B. Whiting (1980). Whiting (1980); noted that culture influences child development primarily by serving as a 'provider of settings', that is, by furnishing the diverse contexts of daily life. For example, in some parts of Africa, babies participate fully in the daily activities of the extended family, a setting where several different people are continuously involved with them. This is a very different setting from that of a baby who spends much of its first few months in a crib or a playpen. The social context formed by the persons with whom the child interacts shapes social behaviour, norms, and values. By the same token, certain characteristics of the social context are also strongly influenced by institutions (for example, the school).

Bril and Zack (1987) have used video recording to compare the physical and social settings of French infants brought up in the home with those who spend most time in a day-care center (with dozens of playmates and several adult caretakers), and infants in a village in Mali. The home-based infants spend much of their time in a room filled with toys, alone or in the sole company of their mother, and possibly one other sibling. In contrast, the babies in Mali partake of the daily life, full of noise and movement, of their mothers and sibling caretakers.

Much research on the importance of various social settings comes from the research coordinated at the Harvard Graduate School of Education by B. Whiting and J. Whiting, in particular their 'Six Cultures study' (1975; see also Minturn and Lambert, 1964; Whiting and Edwards, 1988). Although this research is now fairly old, it is worth recalling. For example, Munroe and Munroe (1971) studied the effects of household density on infant socialization among the Logoli of Kenya. Infants in high-density households were held more often and attended to more quickly when they cried. On the other hand, the mother was less accessible to them: she was less often the baby's main caretaker, and was less often in close range, due to the greater economic responsibilities she bears in a large household. Weisner and Gallimore (1977) reviewed the role of child caretakers in socialization. Child care is one of the most important tasks delegated to children by mothers with many offspring and a heavy workload. Sex differences in social behaviour may well result from differential assignment to social settings (Whiting and Edwards, 1988).

The presence and role of grandparents change the child-rearing setting to a large extent. Grandparents often have more time for focused interaction with the child, since they are less pressed by subsistence tasks. The respective salience of the mother and of the father and in particular the father's (real or symbolic) absence, seem to be influential aspects in the development of personality and in particular of sex role identity.

The size and composition of peer groups is another feature that shows important cultural diversity. The custom of placing the child in a large same-age peer group, with most of the socialization done by an adult who is not part of the family, produces a very special setting, and it may not be an optimal one for learning. In informal education, most of the enculturation and socialization occurs through 'horizontal transmission' (Berry et al.,1992: 18), that is, through peers. When peer groups comprise children of various ages, the younger ones learn a lot from the older ones. This process has been, of course, one of the distinguishing features of youth groups such as scouts and in schools too small to have same-age classes, as in many rural areas.

Language acquisition can be analyzed in terms of enculturation, that is, the selection of a particular context, since there is usually no conscious choice of which language(s) are spoken around the baby. While infants are potentially able to learn any language, they become attuned early to pay attention to a particular set of sounds and acoustic distinctions. When they start speaking themselves, they practice only the relevant distinctions, to the point where the pronunciation of some unusual syllables may become impossible (or at least very hard to learn) after the early teens. Children who grow up in a plurilingual environment rapidly discriminate between the specific sounds of the languages they hear.

CUSTOMS: CHILD REARING PRACTICES

Cross-cultural research on child-rearing practices, both archival and field studies (such as the Six Cultures study), show how socialization practices are adaptive and linked to eco-cultural dimensions such as food accumulation. Within these constraints, child-rearing practices vary enormously. For example, different baby-carrying techniques determine the type and amount of bodily contact with the mother, and thus the habitual posture, both of which can influence

motor development and perhaps even the personality of the child (cf. Berry et al., 1992; Bril and Lehalle, 1988). In some societies people believe that infants will be hurt if lifted by an arm, or if the head is not constantly supported; in contrast, a typical West African grandmother gives the baby a rather robust massage, during which she does not fear to lift it by pulling on an arm, hold it up by the head, or stretch it by pulling on the hands and feet.

Bril and Sabatier (1986) and Bril, Zack and Nkounkou-Hombessa (1989) analyzed the link between the diversity of settings and child-rearing practices. Regarding the postures infants find themselves in, for example, French babies spend more than half of the day time in a horizontal position in contrast to Bambara babies in Mali who were more often in a semi-vertical or upright sitting position. These different postures provide different types and amounts of stimulation. The Bambara babies learn early to adjust to frequent changes in posture, and the caretakers monitor their manipulations as a function of the infant's developing motor abilities. Child-rearing practices also lead to different types of mother-infant communication, on the proximal/distal dimension. When the baby is in constant body contact, communication can be non-verbal, while the baby who is put away in a crib has to broadcast its needs.

Research on sleeping routines shows diversity not only in where and with whom the child sleeps, but when and how long a child sleeps, as well as the bedtime routines. For example, Spanish children stay up late in the evening, children in Africa have no bedtime and they go to sleep whenever they choose (and sometimes in the middle of a noisy, dancing crowd). In Japan, China and Taiwan, they go to bed late and get up early because of homework for school. Harkness and Super (2006) have organized a large-scale cross-national study to better document some of these routines in various European countries. Co-sleeping (that is, the practice for the baby to sleep near her mother), although strongly discouraged by Western pediatricians, is in fact very common, including in industrial nations such as Japan (Gardiner et al., 2005).

PARENTAL ETHNOTHEORIES

The third component includes the beliefs and values about the development of children, that is, parental ethnotheories. (Goodnow and Collins, 1990; Harkness and Super, 1996) These are not always

fully developed and conscious theories in the sense of a set of scientific laws, but are commonly shared in a social group, and hence might also be called social representations (Jodelet, 1989). These ethnotheories influence child development, in particular by determining contexts and training practices, but it also happens that parents do not always act according to the normative rules they convey verbally. (Bril, 1999)

As part of cognitive anthropology, ethnoscience studies the way in which different societies conceptualize aspects of the environment that correspond to different branches of science. Thus there is ethnomathematics, ethnobotany, ethnomedicine, ethnoastronomy, and so on. Similarly, in what Bruner (1996) calls folk psychology and folk pedagogy, each society develops ideas about why people behave the way they do, and how children grow up and become adults. Most often, these ideas have not been formalized, nor written down; sometimes they seem to emerge only as a researcher asks about them.

Research on parental ethnotheories was presaged in the studies of child rearing of the 'culture and personality' school, epitomized by the work of Margaret Mead and Ruth Benedict. They, too, were interested in the way child development is conceptualized as part of a cultural system. The difference between earlier and contemporary research is mainly one of methodology. Researchers now use interviews and questionnaires as well as systematic observations with fairly large samples, and take into account intra-cultural variations in parental beliefs. They also try to assess the extent to which the verbally expressed beliefs are actually reflected in cultural practices. The consistency of the belief/practices system has become a matter of empirical enquiry rather than a postulate.

Erny (1981), summarized much ethno-psychological work on the African child, explaining how an African world-view and philosophy influences the way the child is perceived by society. Similar information about West Africa in general, and the Nso of Cameroon in particular, is available in Nsamenang (1992; 2004). From the time of her pregnancy, the mother and the (future) child are the most highly valued assets of an extended family, understood as a 'lineage' (Rabain, 1979), that includes not only the living family members but also the deceased ancestors. The child, then, does not belong to the biological parents only, but to the whole community. This is reflected, for example, by the fact that anyone is allowed to ask a child for help in a chore, or to punish a child for a misbehaviour, like not

showing due respect to an elder. Indeed, social aspects of intelligence (such as being helpful, respectful and obedient) are more valued than cognitive aspects (Dasen, 1984). Similarly, in India (Saraswathi and Ganapathy, 2002), parents value 'a *sanskari* child, one who is obedient, respectful of elders and socially conforming' (p. 84).

Hamilton (1981), who studied child rearing among Australian Aborigines, also showed the influence of parental ethnotheories on child-rearing practices. Aborigines believe in a form of reincarnation where the souls of the deceased stay in some sacred and secret location for some time, until, one of them jumps into the womb of a woman passing nearby. Sometime after birth, the father, or a shaman, tries to determine who the child really is, and names it accordingly. A baby, being a respected ancestor, hence comes with a full-fledged personality that has to be respected. This ethnotheory is the opposite of one in which a neonate comes as an empty vessel that has to be filled up, shaped to conform to parents' wishes. Aboriginal child rearing is, correspondingly, exceedingly 'laissez faire'. Children are not taught to obey, and they are always immediately given whatever they ask for, but they always have to share it with others.

Parental ethnotheories derive partly from the adults' observations of child development, just as their practices influence the latter. It is a circular system, in which it is difficult to detect cause and effect (Sabatier, 1994). For example, the physical and social settings of the Bambara babies in Mali, as well as the postures they find themselves in, and the stimulations they receive because of child care practices, form such a system. Bambara mothers say that babies should be able to sit alone between three and four months, and is indeed the age at which their babies can do so, as against the age of 7 months given by Western scales of psychomotor development and the age of 6 months predicted by French mothers (Zack and Bril, 1989). This precocious sitting is not linked, as was previously believed, to an overall African infant precocity, but is a motor skill specifically trained for in many African societies in which it is believed to be an important marker of child development (Super, 1981).

CULTURAL TRANSMISSION IN THE ECOCULTURAL FRAMEWORK

The developmental niche as a microsystem is in interaction with the wider macro-system of the ecological and socio-political contexts, and the biological and cultural adaptation to these. This interaction

occurs through processes in the meso-system, among which cultural transmission is of course of special interest for our purpose. This consists of enculturation and socialization.

Enculturation happens largely through the selection of contexts. Children learn what there is around them to be learned. But this selection of contexts is usually simply part of the cultural setup; it is not under the conscious control of parents. Consider the number of books available in a home; this is usually a function of the level of literacy and socio-economic status of the parents. In more educated households, there are more books around. Some parents purposefully buy 'educational' children's books, or even an encyclopaedia to help with schoolwork (more often, now, as a CD-ROM). In such a case we would speak of socialization rather than enculturation. Some customs and child-rearing practices are illustrative of enculturation, because they are mainly unconscious, while others are closer to socialization, because they are willingly chosen.

Child-care practices are usually very homogeneous within a society: There is one, and only one, proper way of handling a baby, the one way that has been practiced over the generations, without any questions asked (or the one advocated by the currently fashionable pediatrician, be it Spock or Brazelton). These practices, however, vary greatly between societies; a cross-cultural comparison is needed to become aware of the diversity.

The third subsystem of the developmental niche is typical of socialization, because cultural belief systems represent conscious explanations or rationalizations for customs of child rearing. Hence, the developmental niche represents the whole spectrum between enculturation and socialization, and in the eco-cultural framework, these processes are linked to culture, and ecological and socio-political contexts, on the one hand, and determine the child's behavioural development on the other. Acculturation and social change are processes that strongly influence the system, and genetic transmission is also recognized, particularly in terms of the child's temperament.

CONCLUSION

This very short summary of some of the research dealing with informal education demonstrates its interdisciplinary character: it draws on

anthropology, (cross-)cultural psychology, life-span developmental psychology and family studies, and produces a complex picture of cultural transmission with both universal processes and culturally specific implementations. Formal education, particularly schooling, should be seen as one specific form of cultural transmission, often lacking in cultural appropriateness; this problem could no doubt be lessened by searching for ways to bring schooling more in line with informal education, while maintaining its specific advantages, for example in its possibility to foster flexible knowledge suited to dealing with ever increasing social change.

NOTES

1. This chapter is largely based on my previous writings on the topics of informal education and everyday cognition, notably in one of our textbooks of cross-cultural psychology (Segall et al. and Poortinga, 1999). See also Dasen (2000, 2004; Trommsdorff and Dasen, 2002).
2. The research by Chamoux and by Delbos and Jorion is reported in some detail in Segall et al. (1999).

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