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CHAPTER 4

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EMICS AND ETICS IN CROSS-CULTURAL PSYCHOLOGY: TOWARDS A CONVERGENCE IN THE STUDY OF COGNITIVE STYLES

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Pierre Dasen

Introduction

Psychology, including cross-cultural psychology, as well as other social sciences including anthropology, are born and have grown up in the last century mainly in Europe and North America. Hence they are inculturated in the Western “minority” world, disregarding what Kagitçibasi (1996) has called the “majority word” in which most of the human populations live. As such, we cannot hold this against these sciences; after all, each one of us is born and raised in a particular group, of which we learn the rules and the tricks, and which gives us our identity. It only becomes a problem when we compare these rules and tricks to those of others, and believe that our own are better, if not the only valid ones, and when we try to set them up as models and impose them on others. Ethnocentrism is surely one of the most universal processes! How can we overcome it? Unfortunately, most textbooks of psychology are based on Western theories and research, and it is therefore difficult to decide what is and what is not appropriate in Africa. Until there are truly African textbooks of psychology, some elements of (cross-)cultural psychology should be useful.

Cross-cultural psychology has attempted to overcome Western ethnocentrism. It draws attention to the fact that psychological theories that have been established empirically only on a minute fraction of humanity (if no longer on rats at least mainly on first year psychology students in the U.S.A.) cannot ipso facto be considered to be universally valid. By taking the existing theories and methods and testing their validity elsewhere, it is gradually able to establish which processes are really universal, and which are specific to particular cultural contexts. This is the so-called “etic” approach, transposing and seeking to generalise existing theories. However, if that were the only approach in cross-cultural psychology, it would also be ethnocentric through the choice of subject matter. What is also needed is to study psychological phenomena that originate in particular cultural contexts. This approach has been variously labelled as “emic”, or “cultural psychology”, or “indigenous psychology”, and comes close to anthropology and its dictate of cultural relativism. It is my view that these two goals are not mutually exclusive, but should be pursued in combination.

Berry and Dasen (1974) had exactly this in mind when they defined the goals of cross-cultural psychology as being three-fold: 1) To test existing theories elsewhere; 2) To document diversity and discover new phenomena; 3) To compare the former and the latter in order to end up with a more universal psychology. Segall, Dasen, Berry and Poortinga (1999) later pointed out a fourth goal, that of “unconfounding” variables that are intrinsically linked if one carries out research in a single setting only. For example, in developmental psychology, if all children go to school and move up in the grades at about the same age, the variables of ontogenetic development (chronological age, maturation) and the

effects of schooling are confounded. If we want to be sure that a particular developmental trend is really linked to age and not only to schooling, we should compare schooled and un-schooled children (cf. Mishra & Dasen, 2004; Christian, Bachnan, & Morrison, 2001). With the spread of compulsory schooling, this is becoming increasingly difficult, and of course it should be done in a situation where the selection of who goes to school and who doesn't is not linked to confounding variables such as social class or wealth.

What I intend to do, in this chapter, is to document and illustrate these goals of cross-cultural psychology through examples drawn mainly from my own research in Africa¹, with particular reference to the development of cognition. I will also briefly mention more recent research on spatial cognition outside of Africa (Dasen & Mishra, 2010), leading to the general conclusion that cultural differences reside not in the presence or absence of certain cognitive processes, but in cognitive styles (to be defined below). This formulation I see as a good example of the combination of emics and etics².

Goal 1: Testing existing theories

When developing a psychological theory, most authors will assume that their theory is generally valid, even universal, and this without any empirical test. This was true of Piaget, although he paid some lip service to the need for cross-cultural replication (Piaget, 1974). It is true also of the so-called neo-Piagetian theories (Dasen & de Ribaupierre, 1987), and even more so of most current trends in cognitive science and neuro-psychology. One advantage of Piaget's theory is that, for a couple of decades, it was put to empirical test on every continent, including Africa (Dasen, 1977b; Dasen & Heron, 1981), which is not necessarily true of many of the more recent theories.

It would be difficult to provide an overview of Piagetian theory in the space provided. The uninformed but interested reader should turn to some summaries written by Piaget (1950, 1970) himself, or to any of a number of textbooks in developmental psychology (e.g. Bideaud, 2006). Basically, Piaget was interested in scientific thinking, and studying the cognitive development of children was only a means to this goal. He described a succession of hierarchically organised, structurally different stages, both across the life-span (sensori-motor intelligence in infancy, concrete operations in middle childhood, and formal operations in adolescence and adulthood), and through a succession of sub-stages within each major stage.

Infancy: Sensori-motor intelligence

My research team and I started our own research in Africa with a longitudinal study of sensori-motor intelligence among Baoulé babies in Côte d'Ivoire (Dasen, Inhelder, Lavallée, & Retschitzki, 1978). What we found was that the sub-stages that Piaget (1936) had observed in his own three children were essentially the same in a larger sample in France (Casati & Lézine, 1968) and in rural Côte d'Ivoire. Other research in Africa and elsewhere came to the same conclusion, which makes sensori-motor intelligence a candidate for a "strong" universal³ (Dasen, 1981).

However we did find some cultural differences as well. Baoulé babies showed a significantly faster development than French norms on some of the tasks⁴, notably the use of an instrument to reach for a

¹ The choice of examples is purely egocentric and anecdotal. Other examples could have been chosen, either from Africa (cf. Mbuyi Mizeka, 2001 for a review) or even from other continents, since the points I am trying to make are much more general. Larger reviews of cross-cultural research on cognition can be found in Mishra (1997) and Troadec (2011).

² For a more detailed discussion of these terms, see for example Headland, Pike & Harris, 1990

³ This is not to say that there are no controversies about Piaget's theory of development in infancy. With more sophisticated methods, several processes such as object permanency can be found earlier than what Piaget had claimed. However, in my view, this does not invalidate the basics of the theory.

⁴ This conclusion applies to the control group of well-nourished babies. Moderate malnutrition had a significant effect in slowing down the rate of development.

distant object⁵. When we carried out behaviour observations of daily activities, we observed that babies often had an opportunity to practice this skill; they were allowed to play with whatever was within their reach, including objects that Western mothers would consider as too dangerous such as a knife or a cutlass, and they often used these as instruments. On the other hand, Baoulé babies often showed frustration when their mothers were prevented from reaching for the desired object to give it to them immediately, and some babies even pushed the mother's arm as if it were a (social) instrument.

Other studies on psychological development in infancy, summarised by Super (1981a/b; Super & Harkness, 1997), similarly showed a direct link between the rate of motor development and the opportunity for practice, and this in relationship to parental ethnotheories and childrearing practices. For example, in many parts of Africa, sitting alone and walking are considered to be important developmental landmarks, are actively encouraged, and occur on the average three months earlier than in France (Bril & Sabatier, 1986; Zack & Bril, 1989), while crawling is usually discouraged and hence develops later.

Middle childhood: concrete operations

In Côte d'Ivoire and in Kenya, we studied another aspect of Piaget's theory, the development of concrete operations. In one study among rural Baoulé children in Côte d'Ivoire (Dasen, 1984), we used 19 Piagetian tasks in three domains of thinking: conservation, elementary logic and space. Conservation is akin to quantification, with the idea that some aspects of quantity (amount, weight, volume, length, etc.) do not change even when the visual aspect of the display is changed. For example, given two identical glasses filled to the same level, if the liquid of one glass is poured into a container of a different shape, the question is whether there is still the same amount of liquid or not. The so-called pre-operational child will say "no, there is more in the glass where the level is higher", while the child using concrete operations will say "it is the same amount, this glass is higher but also more narrow". Elementary logic refers particularly to reasoning about classes. For example, there is the problem of class inclusion: given a bunch of 8 bananas and 2 mangoes, are there more fruit or more bananas? Spatial operational reasoning has been described by Piaget and Inhelder (1956) as a succession of so-called topological references (next to, near, etc.), projective space (e.g. the idea of a straight line) and Euclidean space (grid, with measured distances). One example of a spatial Piagetian task is provided by a bottle tilted in various directions, the child having to predict for each position where the water level will be.

In this study with 47 children aged 8 and 9 years, the contents of the tasks were partly adapted so as to be familiar to village children, and the testing was performed in the local language. A principal component factor analysis showed a three factor structure, clearly differentiating spatial reasoning and conservation, with the tasks of elementary logic loading mainly on a third factor but also partly on the two others in accordance with task demands. I take this as an indication of universality of the structure of concrete operational thinking. Indeed, the method of demonstrating structural equivalence between the theoretical expectation and the data, or between two or more cultural groups, using various forms of factor analysis and in particular principal components, has become the standard practice in cross-cultural psychology (Fischer & Fontaine, 2011).

Together with my research in Australia and Canada, the results in Côte d'Ivoire and Kenya also showed variations in the rate of development of different conceptual areas, according to which concepts are more valued in any given environment. For example, nomadic hunting and gathering people value spatial concepts more than quantification, while agriculture, because goods are stored, exchanged and sold, seems to be linked to a more rapid development of concepts of conservation (Dasen, 1975; see also Segall et al., 1999). In an eco-cultural perspective, these results are not surprising. Obviously, people value and foster those concepts and skills that are adaptive, and this is reflected in child development.

We also carried out several studies using so-called operational training techniques (Inhelder, Sinclair, & Bovet, 1974): children are given the opportunity to discover a concept through handling objects (similar

⁵ In this situation, the baby sits on the mother's lap in front of a table, and an interesting object is placed on the table out of reach. Instruments such as a toy rake and a ruler are provided should the baby wish to use them for pulling on the object (with the rake) or pushing it in a circular motion (with the ruler).

to test materials) and interacting with the experimenter. Of course they are never told the “right” answer, which would be uninteresting, but they are challenged in their pre-operational thinking, and induced to discover the various dimensions of a task. After initially training the conservation of liquids with 10 to 14 years old Inuit children (Dasen, 1977a), we used training procedures for conservation, class inclusion and horizontality among 7 to 14 years old Baoulé children in Côte d’Ivoire (Dasen, Lavallée, & Retschitzki, 1979; Lavallée & Dasen, 1980), and with 12 to 14 years old Kikuyu children in Kenya (Dasen, Ngini, & Lavallée, 1979). The results showed a statistically significant training effect in each training group for each concept. In most cases where there was initially a “time lag” (an apparently slow development of a particular concept), training was sufficient to reduce or completely eliminate these lags. We found that training in one concept would generalise to other concepts, either in the same domain (e.g. training conservation of liquids to conservation of number or substance) or across domains (conservation to class inclusion and vice-versa, but not to horizontality).

In some cases, training was very fast with the older children (12-14 years), leading to the conclusion that these children must have had the competence for the concept being tested, but were initially unable to display this in their performance on the task. The training situation helped them to “actualise” their underlying competence.

Intermediate conclusions on culture and cognition

I conclude from this very brief summary of my own results (but I know of no other research, in Africa or elsewhere, that contradicts this), that Piaget’s theory of sensori-motor intelligence and concrete operations is indeed universal at the structural level⁶. What I mean by this is that the sub-stages described by Piaget, and the type of reasoning these represent, are found everywhere and in the same succession. On the other hand, there are cultural differences in the speed of development of particular concepts, depending on whether these are valued and fostered or not in any particular setting. These differences can be compensated by appropriate operational training procedures, which shows that they are not permanent but in fact quite malleable. In some cases, children have the underlying competence for a particular concept, but cannot display it without some help.

These findings show that all children⁷ have the possibility to acquire all basic cognitive processes, even though some children, depending on their socio-cultural background and previous experiences, may not necessarily be able to use them spontaneously. The challenge is to find the appropriate ways to help these children to either actualise their underlying competence, or to discover and acquire the relevant concepts through interactions with their physical and social surroundings.

Other research on everyday cognition (reviewed in Segall et al., 1999; see also Schliemann, Carraher, & Ceci, 1997), particularly on ethnomathematics (Dasen, Gajardo, & Ngeng, 2005; Nunes, Schliemann, & Carraher, 1993; Saxe, 1991), shows that mathematical procedures acquired outside of school can be quite sophisticated, but they tend to be restricted to specific contexts, i.e. transfer to unfamiliar situations may be limited. The implication is that one should look for the knowledge children acquire outside of school and value this knowledge even if it is different from what is usually taught at school. Children should also actively be trained to apply their knowledge to a large set of contents.

Goal 2: Documenting diversity and discovering new phenomena

Testing existing theories to find out whether they are applicable in different cultures should be a standard requirement in psychology, and it is surprising that it is not done more often. As we have seen in the previous section, it can show both the universality of developmental processes and cultural variability. However, testing existing theories is not sufficient, if only because most of them originate in the Western world. A complementary approach is to search for phenomena that originate in non-

⁶ The conclusions about Piaget’s stage of formal operations are more controversial. Most research shows that formal schooling at the secondary level is necessary (but not sufficient) for this type of reasoning to develop; however there may be an artefact, in so far as the assessment tasks are very school like. There are a few studies that found formal operations in out of school situations (Nunes, Schliemann & Carraher, 1993; Retschitzki, 1989). Tapé’s (1994) research will be discussed below.

⁷ This of course means all « normal » children ; in every population there are individual differences, and some children with disabilities to which this conclusion may not apply.

Western cultures, in the so-called “majority world”, and which may be either quite wide spread or on the other hand more local. It is what anthropologists often do, and in psychology, it is variously known as cultural psychology, or indigenous⁸ psychology (for a review, see Sinha, 1997; also Allwood & Berry, 2006). Most of the research in indigenous psychology has been carried out in Asia, particularly India (see for example Mishra, 2006; Misra & Mohanty, 2002), while from Africa, the published literature on indigenous psychology and education is relatively scarce. The works by Bame Nsamenang in English e.g. (Nsamenang, 1992, 2003, 2004) and Tapé Gozé (e.g. Tapé, 1994, 1999), Ezémbé (2009) and Koudou Kessié (1996) in French are noteworthy exceptions.

A special mention needs to be made of the many publications by Pierre Erny, an anthropologist at the University of Strasbourg in France, who has spent many years in Central Africa as a catholic teacher and university professor, and has written a lot about traditional education and child development as related to African cosmology and values (Erny, 1968, 1972a, 1972b, 1991), some of it translated to English (Erny, 1973, 1981). He has also dealt extensively with schooling (e.g. Erny, 1977, 1999). Erny comes closest, as a non-African writer, to trying to understand African concepts of conception, childhood and the life cycle. For example he explores at some length the implications of the belief in reincarnation (Erny, 1973, 2007, see also Zahan, 1965). The problem I have with Erny’s writings is that it is sometimes difficult to tell where his information comes from, whether it is from his own observations, or what his students told him, and he quotes from literature all over Africa. This makes it difficult to know whether a particular issue is restricted to one particular group or area, or whether it is more wide-spread if not pan-African.

There are, of course, other interesting writings on child development by anthropologists (e.g. Lancy, 1996), not to mention African fiction that can be as informative if not more than some scientific writings. My purpose here is not to review this large field. Instead, I will mention one example of so-called “emic” research into African definitions of intelligence, the one a group of African research assistants from the University of Abidjan and I carried out among the Baoulé in Côte d’Ivoire (Dasen, 1984a; Dasen, Dembélé, Ettien, Kabran, Kamagate, Koffi, & N’Guessan, 1985).

While we were studying the group of 8 to 9 year old children mentioned in the previous section using Piagetian tasks and behaviour observations, we decided to also interview their parents on how they describe an intelligent child. The Baoulé say that one can tell from a number of behaviours whether a child is likely to have n’glouèlè as s/he becomes an adult. A content analysis of these interviews produced the typology presented in Table 1.

Table 4.1: Components of n’glouèlè, the Baoulé definition of intelligence

Social intelligence		Technological intelligence	
O ti kpa	Willingness to help, responsibility, initiative, know-how	I gni ti klé klé	« His/her eyes follow everything » Observation, attention, speed of learning
Agyiè	Politeness, obedience, Respect	I sa si ngoulèlè	Manual dexterity
O si hidjo	Speaking in public, Using proverbs	I ti ti kpa	« S/he has a good mind » Memory, luck
Angundan	Wisdom	O si floua	« S/he knows paper » Reading and writing, To be schooled

⁸ « Indigenous » sometimes has a pejorative undertone linked to colonial history, particularly in French. Here it is used without any value judgement as meaning endogenous or contextualised.

Each component could be illustrated by various examples and anecdotes. For example, a child who is “o ti kpa” could be a girl who gets home alone from the fields, finds that the dishes have not yet been washed, takes the initiative to wash them, and then competently starts to prepare the vegetables for the next meal. In Table 1, the components are subdivided into two groups, social and technological aspects, according to a suggestion by Mundy-Castle (1974) who had carried out a similar study in Nigeria. Within each group, the components are listed in order of importance (frequency of occurrence). The social components represent 63% of the total, which shows that Baoulé parents value a child who fits in with community norms somewhat like an adult. This does not exclude the importance of more cognitive components, but these should be used in favour of the social ones, which is illustrated by the discussion some parents had about whether school intelligence was part of n’glouèlè or not. Some of them opposed intelligence at school and at home, but most of them considered successful learning at school as part of n’glouèlè as long as the child would not use it for individual promotion but to further community goals.

Several other studies on emic definitions of intelligence have been carried out in Africa, and they all show some similarity, and notably the importance of social components similar to those of n’glouèlè (e.g. Bisilliat, Laya, Pierre, & Pidoux, 1967; Serpell, 1989, 1993; Super, 1983; Wendenda Ahondju, 1999). While there are local variations in the details, the overall phenomenon seems to be pan-African. However, when I presented this hypothesis of an African definition of intelligence to some of my colleagues at the University of Geneva, they objected that a similar social definition might be found in rural areas of Europe where children also perform chores on the family farm. When we did such a study in a traditional village in the Swiss Alps, we found that the definitions the parents gave were in the majority cognitive/technological (on the average in about 78% of the statements), whether the respondents were young or old, farmers or not. The only condition in which we were able to find more social components (65%) was when some very old people (75 years and older) were interviewed a second time in the local dialect, which no doubt allowed them to attune their minds to the community spirit they had experienced during their youth and the times they were raising their own children (Fournier, Schurmans, & Dasen, 1999).

I mention this research because it shows, first of all, how an emic study, in this case carried out in Africa first, can lead to interesting results when it is turned into a comparative (etic) approach. Secondly it demonstrates a fact that will be discussed further below, namely that both social and technological components are potentially available everywhere, but that there are cultural preferences for one group or the other.

There are many opportunities to study cognitive development on the basis of everyday activities, which is likely to be much more culturally appropriate than using standardised tests or artificial laboratory situations. For example, (Retschitzki, 1989, 1990) used the board game known in Côte d’Ivoire as *Awalé* (and elsewhere in Africa variously as *Wari*, *Solo*, etc.) to study the development of reasoning and planning. Similarly, Tanon (1994) studied the transfer of planning strategies from weaving to novel tasks in northern Côte d’Ivoire, and Ngeng (2007, 2009) studied learning and teaching processes surrounding the apprenticeship of pottery in Cameroun. Serpell (1993) paid attention to carrying out errands, or making wire models, and Oloko (1994) examined the skills of street children in Nigeria. A particularly well documented area is that of ethnomathematics (cf. Dasen et al., 2005), i.e. the geometrical and other mathematical concepts used in daily life in various locations (Ascher, 1991; Bishop, 1988; Gerdes, 1988, 1998a, 1998b; Zaslavsky, 1994). Many more situations come to mind depending on the particular context. In the Baoulé village of Kpouébo, for example, I would have liked to study how children learn the very complex greeting rules, or how adolescents learn to use proverbs.

Goal 3: Develop a more universal psychology

As I have argued previously (e.g. Dasen, 1993), it is urgent for African psychologists and educators to carry out contextualised research on child development and education on the basis of African values and cosmologies, instead of relying on imported theories and models. However, once this is done, the time will come to compare the findings to what is known about elsewhere, in order to generate a more universally valid psychology. In other words, emic and etic research procedures are not mutually exclusive or contradictory, they are complementary. In other words, goals 1 and 2 of cross-cultural

psychology lead to goal 3. I now wish to illustrate this with the general conclusion that cultural differences reside in cognitive styles.

Cognitive styles

An extensive research program on culture and cognition, based mainly on adapting laboratory experiments to make them culturally more appropriate, was carried out by Cole, Gay, Glick and Sharp (1971) in Liberia, Mexico and the United States (for a review, see Segall et al., 1999). The authors came to the following conclusion: "Cultural differences in cognition reside more in the situations to which particular cognitive processes are applied than in the existence of a process in one cultural group and its absence in another" (Cole et al., 1971, p. 233)

Combining the research examples mentioned in the previous sections leads me to agree fully with this conclusion, although in a slight reformulation: "Cultural differences in cognition reside more in cognitive styles than in the existence of a process in one cultural group and its absence in another" (Dasen & Mishra, 2010, p.13-14).

Cognitive styles can be defined as "an individual's preferred and habitual modes of perceiving, remembering, organising, processing, and representing information" (Dörnyei, 2005, p. 125), or even more generally as "one's preferred way of processing information and dealing with tasks" (Zhang & Sternberg, 2006, p.3). In other words, we speak of a cognitive style when a set of cognitive processes are all potentially available, but some are preferentially used rather than others, and when different individuals (or different groups) react differently to a cognitive problem (task, test, experiment, etc.) in some systematic way even though they have the same underlying cognitive capacity or competence. They "choose" to react in this particular way under the influence of a variety of factors such as their age, gender, previous experience, socialization, etc. An important aspect of cognitive styles is that there is no value judgment attached, i.e. it is not inherently "better" to choose one style rather than another. This "choice" may of course be quite unconscious, and is influenced by many eco-cultural variables.

The concept of cognitive styles illustrates the combination of etic and emic approaches in cross-cultural psychology: On the etic side, there is the universality of cognitive processes, at least in terms of availability or competence. On the other hand there are cultural differences in cognitive styles, which reflects the emic approach. The existence of these styles would not have been discovered if research had not been carried out from an insider's perspective.

One example of an African cognitive style comes from Tapé's (1994) research in Côte d'Ivoire. He starts with analysing the African traditional cosmology in which mankind is part of nature, as opposed to the Western conception (exemplified by Christian religion, but also by Islam) in which mankind is above nature and is thus allowed to conquer and control it. This leads to two types of reasoning, global and symbolic on the one hand, based on experience and geared to explaining the final goal of events, analytical and experimental on the other hand, geared to explaining causal effects.

In the empirical parts, Tapé presented schooled and unschooled informants with a number of Piaget's tasks of formal operational reasoning, in one of which one has to determine which variables (length, section, thickness, material, weight put at the end, etc.) influence the flexibility of rods. To carry out a proper experiment, one has to test one factor at a time, keeping all others constant. While about a third of the (14 to 16 year old) school children could perform the task, illiterate adults basically refused to deal with it, saying that, when they build traps in the forest, much depends on whether the sticks remain flexible for several days or not. Tapé (1994) formulates this in terms of a plural model of intelligence. According to this model, each individual in every culture has at his or her disposal at least two ways of dealing with information with the help of two forms of intelligence: the analogical mode for a global, immediate processing, which is economical but lacks precision, and the conceptual mode for an analytical, precise but costly processing. Culture, through the impact of schooling and the contexts of learning can value one mode rather than the other. (p.221) Rural adults show thought processes based on experience different from experimental procedures, that they develop in a particular spatio-temporal context, which limits their application to known reality. ... Schooling hence appears to be the environment most favourable for the development of formal and experimental reasoning, while the

traditional illiterate environment is more favourable for the development of analogical and experienced reasoning. (p.208, my translation)

Another example is the research carried out by Scribner (1979) in Liberia on syllogistic reasoning. What she found was that illiterate adults could use this form of logic perfectly well, but would only apply it to premises in line with their social reality; if the premises were unfamiliar, they would either change them to fit reality, or refuse to answer. This is what Scribner called the empiric mode, as opposed to schooled informants, who accept to reason with any even unfamiliar premises in the so-called theoretic mode. In school, pupils get a lot of practice of dealing with unfamiliar and even hypothetical situations. Schooling does not produce new cognitive processes, but provides the training to generalise (transfer) existing processes to a wide range of situations. In other words, it produces a theoretic cognitive style.

The geocentric spatial frame of reference (FoR) as a cognitive style

Dasen and Mishra (2010; in press) report results from a long-term cross-cultural psychology research program carried out in India, Indonesia, Nepal and Switzerland on the development of the use, in language and cognition, of various frames of spatial reference (FoR). On the basis of research in anthropological linguistics, Levinson (2003) found that languages differ in which frame they favour to express spatial relationships. Most indo-european languages (such as English, French, German) but also others such as Japanese use almost exclusively the egocentric frame, where the location of objects is described in reference to the speaker's body. For example, one would say "The knife is to the right of the plate, and the fork left". Note that we are dealing here with small scale, table-top space, and not with wider spatial orientation for travelling. There are a number of languages (such as Balinese, Hindi, Nepali) that prefer the geocentric frame in the description of small-scale spatial displays, even inside of a room, i.e. the use of wide-ranging dimensions such as cardinal directions (North, South, East, West) or other far reaching geographic features. In Bali, for example, a child would be told: "Put the fork towards the sea and the knife to the mountain". In addition to these two (egocentric and geocentric) frames, all languages use an object centered "intrinsic" frame, which, in Piagetian terms, corresponds to topological space ("Put the knife and fork next to the plate").

In various rural and urban locations in the countries mentioned above, we studied how children between 4 and 14 years of age (and some adults) get to use these various FoRs. We found a distinct preference for the geocentric FoR in both language and cognition (in non-linguistic tasks involving memory encoding of spatial arrays with a rotation paradigm) overall in Balinese, Hindi and Nepali compared to French, more in rural than in urban settings, increasingly with age, but sometimes starting very early, such as age 4 in Bali. For the details of the procedures and the results, the reader is referred to Dasen and Mishra (2010). Suffice it to say that in all locations used for this study, all three FoR were theoretically available, but that a clear preference for one or the other emerged, depending on various individual and eco-cultural variables⁹. For example, different cognitive tasks triggered the geocentric FoR differently, even though they were structurally similar. Children in Geneva used the egocentric FoR almost exclusively, while children in the other locations showed a greater preference for the geocentric FoR under the influence of various socialisation practices, such as Hindu religious rituals (e.g. in Sanskrit schools) or kind of spatial experience, such as walking to school instead of being driven there. In other words, the egocentric vs. geocentric spatial FoRs are a cognitive style, they are both potentially available, but which one is actually used depends on the situation.

Conclusions

To sum up some of the core ideas of this chapter:

1. Cross-cultural psychology should combine the etic and emic methods, which are not conflicting but mutually enriching. On the etic side, it is useful and even indispensable to put existing theories (whatever their cultural origin) to the cross-cultural test, but only with an emic approach is it also possible to discover previously unknown phenomena.
2. Cognitive processes and their development are found to be universal. However there are cultural differences in cognitive styles.

⁹ For a theoretical framework showing child development in eco-cultural context, see Dasen, 2003.

3. There are socio-cultural differences in which cognitive styles are favoured or not. All of these styles are adaptive in some contexts, and it does not make sense to introduce value judgements. It is not inherently better to choose one style or another.

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