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## On Slightly Bowing Researchers: Jürg Wassmann's *Das Ideal des leicht gebeugten Menschen*

Wassmann, J. *Das Ideal des leicht gebeugten Menschen: Eine ethnokognitive Analyse der Yupno in Papua Neu Guinea* (The ideal of the slightly bowed human being). Berlin: Dietrich Reimer Verlag, 1993. 246 pp. ISBN 3-496-00436-3, DM78.

### A New Methodological Approach

This monograph written in German presents a new approach and demonstrates it with a traditional illiterate culture. The book starts with the description of the 'state of the arts' in cognitive anthropology (ethnology) and presents a methodological suggestion of how to combine (cognitive) anthropology and cognitive cross-cultural psychology. While anthropology often is based on information of a few informants who seem to be 'experts' of the culture, cross-cultural psychology collects data from a sample of individuals assuming that these data represent the knowledge and/or cognitive structure of the whole population. Anthropology tries to describe and understand normative knowledge within a given culture. The position of anthropology is culture-relativistic. The main method is fieldwork where a few main informants are contacted. Psychology searches for individual information processing and tries to generalize results inductively from common features between individuals.

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Jürg Wassmann criticizes the gap between the two approaches and proposes a three-stage methodological procedure to overcome the 'great divides':

1. Interrogation of as many individuals as possible, including experts as well as 'jpf's' (just plain folks: Rogoff & Lave, 1984 [see also Blanco, 1995; Lawrence, 1995; and Wassman, 1995—editor's comment]). The average members of a culture become the most interesting group because their knowledge indicates how the average individual reflects and/or utilizes the cultural knowledge.
2. Observation of behaviour in everyday life that indicates the application of cultural knowledge. The actual behaviour shows which aspects of the collective cultural knowledge are applied in a given domain as well as whether other forms of knowledge (e.g. universal categories like colour) are included.
3. Experiments which induce behaviour that is not observable (and therefore not testable) in everyday life. The experiment was included in response to the field observations which did not give answers to crucial questions (e.g. the concept of number).

The culture under investigation was the Yupno culture. The Yupno live in a wildly cleft distant area in the eastern Finisterre Mountains, Province of Madang, Papua New Guinea. Most of the circa 6000 inhabitants live 2000 to 2500 metres above sea-level between the rain-forest and the prairie-like highlands.

Four domains of knowledge representative of the Yupno culture were investigated: the system of numbers and the counting system; the classification of the environment (in general of the world); the classification of food; and the spatial representation of the living environment. As the more unusual part of the investigation, the experiments were planned and conducted in collaboration with P.R. Dasen. Wassmann can be viewed as an expert on the Yupno culture. He has already published a monograph about the cultural groups in the Finisterre Mountains (Wassmann, 1992).

The four domains are presented in three chapters (world-views of 'hot' and 'cold' as well as grouping of food are treated in one chapter). The three methodological steps and their results are described according to the sequence interrogation—observation—experiment. Interrogation and observation were carried out in the villages Kewien and Gua, while the experiments were conducted in Gua only.

## Numbers and Counting

The description of this domain of knowledge follows the general division of the book mentioned above. First, *the traditional counting*

*system* is described. Description of this system was gained by interrogation of the most respected person in the village, who was generally viewed as an expert of knowledge.

The traditional counting system shows similarities to and differences from those of other Papua tribes (e.g. for the Oksapmin, see Saxe, 1982). Counting starts with the small finger of the left hand followed by the fingers of the right hand, the left foot toes and the right foot toes. The remaining numbers from 21 to 33 begin with the left and right ear, the left and right eye, etc., finishing with the penis (*kadim*: abbreviation for *nyivil kanda*, the crazy penis). The expert demonstrated counting by bending the fingers with the other hand or by pointing to the body parts. If the informant counted sticks, he simultaneously pointed at the corresponding body parts. The naming of the numbers is rather complicated. For the first three numbers specific counting names are used, 4 is expressed as '2 and 2', and higher numbers are described as combinations between counting names and names for body parts. The number 5 plays a special role, since 5, 10, 15, 20, are expressed by using the term 'thumb'.

This counting system is not used in everyday life, for which Lancy's (1983) statement holds true: 'people are indifferent to quantitative aspects of things beyond "one", "two" and "many"' (p. 109). However, there are two situations for the Yupno culture where counting in the traditional way is important, namely the determination of the bridal (wedding) price and shopping (buying items in the shop). All objects for the bride are determined. First, the number of items to be exchanged for the bride has to be determined through negotiation between the bride's clan and the partner's clan. The leader of the negotiation is the father's brother of the bride. For every pig a little stick is prepared. The author describes in detail the transfer of the bridal price (e.g. 15 pigs, 522 *kinas* [indigenous currency], 72 grass skirts, 2 boxes of cookies, 3 boxes of soap, 2 bundles of sugar-cane, 2 cans of fish, etc.). Later the items are successively given back to the donors. Only the older generation counts the items, whereby men count out loud and in public, while women count silently and in a private place. Counting items of the bridal price necessitates the traditional counting system. But it turns out that this counting is a side-issue. Much more important is to know exactly who has given the items, because the presents have to be returned later. Since nobody gives more than one or two pigs, these numbers are sufficient for the transfer and re-transfer of items.

The second situation where counting is used is shopping. In Papua New Guinea three currencies were introduced: the Australian pound,

the Australian dollar and the indigenous currency *kina*. The older people only know the first currency, the younger people only use the third currency, while the Australian dollar is unknown in the Yupno area. Older people using the pound currency count with the traditional system, but only count until 20 (= 1 pound). The younger people use the *kina* currency but mix it with the other system. So 3 *kinas* are counted as 'one whole man and an open hole', where 'one whole man' stands for 20 and an open hole is 1 *kina*.

The method of observing counting procedures and simple ways of calculation is unsatisfying since, for example, the determination and transfer of the bridal price occurs among a large group of people (the whole village) and the way of handling buying and selling could only be discovered by a fussy explanation of the informants involved in the business (buyer and seller). Therefore, the author arranged a quasi-experimental situation in which counting and calculating could be observed under control. Subjects were chosen from three age-groups: older people; younger adults without school education and younger adults with some education; and children between 10 and 16 years of age. Women were not included in the sample, since they are not allowed to count in public. Subjects were tested individually. The experimenters presented the subjects with counting tasks and simple calculation tasks (addition, subtraction, multiplication and division). Results show, on one hand, that the subjects had difficulties in understanding decontextualized tasks, but, on the other hand, they were able to count without things and to calculate arithmetical tasks where subtraction was understood as a specific kind of addition and divisions could not be performed.

What is the outcome of the threefold method within the domain of numbers? First of all, the traditional counting system as it is presented by the 'omniscient' expert is not the only way of counting in the Yupno culture. Hence, it is misleading to understand cultural knowledge as a uniform system and to disregard the interindividual variation. Even subjects who used the traditional counting system (the older ones) showed variability in that they started counting with the right foot or with the big toe, etc. The younger subjects preferred a mixture between the older system and the usage of Tok Pisin words which are simpler than the complicated traditional names for numbers. The children with educational training are able to calculate arithmetical problems and use arithmetic algorithms. The middle generation of adults seems to be the most disadvantaged group, since they can no longer master the old counting system but fail to handle the western system of counting.

It deserves special attention that the author uses the historical perspective in a systematic but unfamiliar way. The question of how the mastery of counting develops cannot be answered by cross-sectional comparison, since the youngest group (10- to 16-years-old) was the most advanced and the oldest group the least advanced with regard to arithmetical operations. The sociohistorical change was more pronounced for the youngest subjects with educational training. Therefore, ontogenetic development moves in a contrary direction to cultural development: what is manifested last in the culture develops early in the young generation. This generation might in 15 years become aware of its traditional values and get motivated to learn the old traditional system. Or, on the contrary, the whole cultural system may change towards modern (western) cognitive knowledge.

This counter-direction of ontogenetic and cultural development occurs (and occurred) more or less in all traditional cultures which are changing (and have changed) into modern societies. The author does not explicitly deal with this aspect.

### **Hot, Cold, and Cool: The Ideal of the Slightly Bowed Human Being**

Most objects, plants and animals in the Yupno environment are in the state of 'hot', 'cold' or 'cool'. 'Hot' and 'cold' mark extremes, while 'cool' holds a medium position and is valued as the normal and desirable state. The term 'hot' has the same meaning as in other cultures (e.g. hot like fire, hot like pepper on the tongue, hot as being hot-tempered). But the meaning of 'hot' in the Yupno culture is much broader. All objects which are in a high position or in a fast movement are 'hot'. Furthermore, 'hot' is related to the right side of the body and to men in general (while 'cold' is related to the left side and to women). Psychological states like angry, depressed and self-willed are also 'hot'.

'Cold', on the other hand, is also used in a figurative way. It is connected with 'broken', 'worn', 'speechless', 'shame' (a state when one cannot speak), 'standstill' (no movement) and objects in a low position. Thus, things in the sky are 'hot', things beneath the earth are 'cold'.

Plants and animals are also categorized as 'hot' and 'cold'. 'Hot' plants are those which have red bark, blossoms and leaves and which grow in dry places or have thorns. Birds and the kangaroo tree are 'hot' because they live 'above'. 'Hot' objects are black stones and all things that were formerly in men's houses. 'Cold' plants, on the other hand, have a white bark and white leaves. 'Cold' plants grow in humid

places, for example, moss, or have much sap. Animals which live on the soil are 'cold'. Men who often have sexual intercourse are classified as 'cold', while men without sexual experience are labelled as 'hot'.

The desirable state is between 'hot' and 'cold', it is translated as 'cool' (but can also be labelled as 'warm'). 'Cool' traits are slow, cautious, soft, trustful and weak. 'Cool' people are socially integrated; they neither lie down on the earth nor hold their heads above the others. Therefore, slightly bowed people are the ideal of the Yupno culture. They are 'cool', behaving between 'hot' and 'cold'.

The state of an object or a living being can be changed through 'heating up' and 'cooling down', but the jpf's do not have the knowledge necessary for these changes. Only some people own the knowledge of how to change the state of things and persons. People who can use this knowledge are called 'heater' and 'cooler', respectively. The procedure is to bring 'hot' things together with 'cold' ones and, vice versa, to combine 'cold' things with 'hot' objects in order for them to reach the desirable state of being 'cool'.

For the experts (omniscient persons) all things of the world are divided into three states and every state can be changed by a 'heater' or a 'cooler' but not by a jpf. This is even true for preparing meals. In every meal 'hot' and 'cold' food is combined in order to get 'cool' and healthy food. But the change of a state also becomes necessary when some crime or deviant behaviour occurs. Wassmann describes a situation in which a girl was seduced by a man from a neighbouring village who refused to give the girl back. As a revenge or retaliation, Yam, the 'heater/cooler', and two other young men from Gua destroyed the seducer's gardens and plants and killed one of his pigs. In order to hinder the seducer and his clan from finding the pig, Yam blocked all paths and ways by 'cooling' them down. Consequently the men did not find the pig. In both cases 'cold' and 'hot' objects, plants and animals, were used in order to change the state. The pig died, according to the stories told by several persons involved, because it ate a mixture of 'hot' substances. Killing means to alter the animal by charging it with 'vital energy' until it dies. The members of the seducer's clan could not find the pig, in their opinion, because they were too 'cold'. Yam himself also became 'hot' during the manipulations with the pig and 'cold' during the 'cooling procedure', and therefore had to take measures in order to regain the normal state of 'coolness'. As a result of the methodological procedure of the inquiry, this story was reported differently by different persons. Each of them used the concepts of 'heating up' and 'cooling down' but attributed the guilt to different persons.



## Categorization and Concept Formation

The above section dealt with the first two stages of collecting information, that is, the interrogation of experts and jpfes, and observation (the latter being used mainly for preparing food and cooking). Wassmann conducted experiments which should provide evidence of the ability of grouping and thus of concept formation. In cooperation with Pierre Dasen, he used two groups of objects. In the first experiment 19 objects were presented that could be ordered according to the categories of 'hot'/'cold', colour and edible/inedible things, but also with regard to functions, for example, for the treatment of ill people, for rites, and for colouring objects.

Children (educated and uneducated 14- to 16-year-olds) and adults (30- to 40-year-olds with some experience outside the village) preferred colour as a category. The shape of an object was in no case a criterion for categorization. Functions of the objects were used by the adults, while old men, especially the 'heater/cooler' group, also labelled according to the abstract category of 'hot' and 'cold'. Women ordered the material according to functions which belong to their obligations, for example, colouring of net-bags.

In a second classification task subjects were presented with 17 different items of food that could be ordered according to place (bush, garden), a four-category taxonomy of 'hot'-'cold' combinations (potatoes: 'cold'; bananas: 'hot' and 'cold'; tree fruits: 'hot'; edible leaves: 'hot'), 'health' categories (blood-'helping' vs bone-strengthening food) and traditional vs new food. Women classified along the four categories (see above) and the two 'health' categories while male subjects kept the traditional/new distinction in equal balance.

The main conclusions drawn by the author can be summarized as follows. Adults, especially older adults, categorize material according to the fundamental division of the world into 'hot' and 'cold'. Those who are experts of 'cooling down' and 'heating up' use the categories explicitly. The other informants, however, use it more implicitly, that is, according to functions which are also related to 'hot' and 'cold'. For example, women classified food according to its 'hot' and 'cold' qualities because a healthy meal must consist of the right combination of both 'hot' and 'cold' food.

The author shares the position of other psychologists working in cross-cultural cognitive research (Ciborowski, 1980; Cole & Scribner, 1974) and anthropologists (Randall, 1985) that concept formation is not a decontextualized procedure of classification but rather an action-in-context-oriented cognitive activity. Things belong together in the way



in which action brings them together. However, this does not mean that subjects are unable to classify along a decontextualized dimension like colour. But this classification is not suitable for practical purposes in everyday life, it is meaningless within the cultural context.

Again the advantage of the combination of direct observation and experimental procedure becomes obvious. Thus, women were observed while cooking their meals and their talking about food was also registered. The relationship between observation and classification tasks becomes the crucial point of interpretation. The actions of colouring the net-bags and of cooking a combination of 'hot' and 'cold' food explain the classifications in the experimental tasks.

### **The Spatial Representation of the World**

The last domain investigated by the author is the understanding of the environment, that is, the Yupno's knowledge about their living area and their neighbourhood. This domain of knowledge was also investigated by the three-stage methodological procedure of interrogation–observation–experiment. In the traditional view of the Yupno the world consists of three levels of soil and stones: the 'upper place' is the heaven with two stones (sun and moon); the 'medium place' is the surface of the earth surrounded by water; and the 'lower place' is the subterranean area. All three levels are oval, thus the Yupno world is a closed world with the Yupno in the centre surrounded by the other tribes.

The author also describes the knowledge about the neighbouring villages and the spatial structure of the village and its demarcations within the village. The historical change and the influence of missionaries are of special importance for the present structure of the settlements. The author used as an observational method the registration of the movements and routes subjects took during a whole day. Thus it was possible to assess how the living space was used by single subjects. It turned out that the Yupno spent most of their time in their own houses or in the immediate surroundings. Even if they worked in their gardens—more frequently women than men—the distance was not further than a 10-minute walk. In the experimental situation, subjects were asked to draw on the soil the area 'where the people live who have the same language as you'. These drawings differed remarkably with the age of the subjects. The oldest subjects completed drawings that represented a close oval world while the younger ones who had already been outside their living area drew a quadrangular world with grounds (gardens) as squares or presented a detailed map

of the rivers and villages without borders. The youngest group (14- to 16-year-olds) differed in their drawings depending on their school experience. Those without education had drawings similar to the oldest group, youngsters with school experience drew like children in elementary school.

Drawings are interpreted by the author as 'image schemata', that is, as an implicit spatial knowledge which is made explicit through drawing. This assumption is the main argument for inducing the 'experimental' situation of drawing. Wassmann states that the Yupno never use the marking of ways to another place by drawing on the soil. Thus, the action of drawing is as strange as the action of grouping and ordering items. The author infers from the collected materials a change from the traditional oval to the western square, from a closed world to an open description without borders, and from an abstract description to a detailed exact map of rivers, grounds and paths. Again, there exists the reverse developmental tendency of change from old age to the middle age of adulthood.

In a summarizing evaluation of the book, Jürg Wassmann proposes a methodological procedure in order to integrate cognitive ethnology and cognitive (cross-cultural) psychology into a more comprehensive understanding of culture. There is no doubt that the author has succeeded in integrating the more holistic construction of culture in ethnology (anthropology) and the psychological view of culture as internalized cultural knowledge. The book demonstrates differences between collective and individual knowledge, especially the variation of individual knowledge well known from psychological studies in western countries. Even a relatively isolated traditional culture shows remarkable individual variation. Another important distinction is that between the knowledge of an expert and of an average member of the culture (jpf). The expert taken as an old wise man shows a more explicit but also a more traditional knowledge, while the jpf's knowledge is adapted to actual practical needs and represents the experience gained in distinct domains of action like gardening, hunting, cooking, etc. The theoretical assumption about the relationship between cognitive representation and domain-specific action was clearly confirmed: the classification of objects is action-oriented, and things are grouped according to their actional relations. From the information presented by the author a hierarchy of knowledge can be assumed. There seems to exist a paramount world knowledge which provides a fundamental understanding of the world and human existence. This knowledge is also the frame of reference for action in everyday domains. So cooking and eating as well as curing illness are regulated by the general division of

the world into 'hot', 'cold' and 'cool' things. At the level of everyday action, knowledge is obviously structured according to action in different domains. But a basis of knowledge might exist which is independent from specific cultural influence that can be inferred from the experimental performance of the Yupno. Although they had never previously performed the tasks given in the experimental situation, they were able to treat tasks as would western subjects, that is, in a decontextualized way. The Yupno never count outside a specific situational necessity, they never group materials and they never draw a map or a plan. Nevertheless, they are able to perform those tasks quite well.

There are two possible explanations which are not explicitly discussed by the author. One is that this kind of (decontextualized) performance is based on universal human competences that exist independently or beyond cultural specificity. The other explanation is based on the assumption that one and the same performance is related to different competences in different cultures. Thus, the Yupno's abilities of classification and of drawing might reflect other competences than those of members of western cultures. The first explanation is more elegant and parsimonious but not proved thus far, even though there is some evidence from cross-cultural psychology (D'Andrade, 1989; Jahoda, 1990; see, however, Cole, 1978; Rogoff & Lave, 1984). The combination of different methodological approaches in a three-stage procedure certainly represents progress in cognitive cultural research and can be viewed as a pioneering effort which should be followed by other research. The author himself explicitly points at the weaknesses of each of the three methods and is well aware that there is no perfect way of studying a culture, be it a more ethnological or a more psychological approach. Another point is worth noting. The author avoids presenting his approach as a sequence of theoretical assumptions and empirical testings. Rather he uses empirical data as selected aspects of a cultural whole, aspects that demonstrate relationships within the Yupno culture and deliver support for his arguments. Thus, the three stages of the methodological procedure reveal different data about the same phenomena and provide a more comprehensive picture of the Yupno culture.

The language style of the book is sometimes more journalistic than scientific and therefore understandable for a larger audience of readers. On the other hand, readers working in the field of cultural research sometimes miss a clearer explication of the data which serve as the source of the description. The knowledge of experts (omniscient informants) especially is only presented in an already summarized and interpreted manner. Here a similar documentation to that provided for

the description of an average day course of a single person (Chapter IV) would be desirable, because the reader does not know what the expert informant really said and what is the interpreting contribution of the author.

This aspect points at a crucial problem of cultural description often mentioned before: the translation of verbal descriptions of a native member into semantic and syntactic structures of western language. It is a great merit of the book that in stages two and three of the methods used the instruction for the informants as well as their answers are presented in the Yupno language together with the German translation. The author should be encouraged to make all material available for further research. On the whole, the book is a convincing and promising beginning for a new area of integrated cultural research and should be read by every researcher who works in this field.

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### **Biography**

ROLF OERTER is a leading German developmental psychologist who is interested in the cultural organization of persons' self-understanding and reasoning. He is the co-editor (with Leo Montada) of the foundational textbook of developmental psychology which is used widely in German-speaking countries (*Entwicklungspsychologie*, 2nd ed., Weinheim: Psychologie Verlags Union, 1987), and numerous articles in various academic journals.

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