JÜRG WASSMANN · BIRGIT TRÄUBLE
JOACHIM FUNKE (Eds.)

Theory of Mind in the Pacific

Reasoning Across Cultures

HEIDELBERG STUDIES IN PACIFIC ANTHROPOLOGY 1

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Volume 1

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Spielende Yupno-Kinder (Papua-Neuguinea), © V. Keck

COVER:
Yupno children playing (Papua New Guinea)

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JÜRG WASSMANN

Prologue

Small children, three to five years old, look curiously at a package of "Smarties".[1] Their faces are full of expectation, when an experimenter opens it. Surprised the children realise that only coloured pencils are inside the box. Then the experimenter asks, "What do you think, will other children, who have not yet looked inside, think about the content of the carton?" In Western cultures three-year-olds normally reply, "that coloured pencils are inside." Thus, their conclusion is entirely based on what they already know. In Western cultures, only children from the age of four put themselves in someone else's place and say that they would be expecting Smarties. These children have a so-called "theory of mind" (ToM), a perception that subjective perspectives exist.

During an after dinner talk at Stanford University September 2011, psychologist/anthropologist Rita Astuti has formulated it so articulate and concise that I adopt her wording below.

> We all have a mind [she, and I join her, assumes]. This assumption, and what follows from it – that you have knowledge, desires, intentions, emotions, beliefs and that it is your knowledge, desires, intentions, emotions and beliefs that explain your actions or lack thereof – is what Theory of Mind is all about. … [Having it means] having the capacity to go beyond the surface, beyond the behavior and the actions to the intentions, the desires, the beliefs that motivate them. … When you see someone running, you don't just see a physical body in acceleration – you see the intention or the desire to catch the bus or win a medal; when you see a hand reaching for an object, you don't just see a trajectory through space – you see the goal of getting that object; and so on (Astuti 2012).

In the theory of mind the human being and her/his possible relationships to others is at the centre of attention, so is her/his inner life and her/his transparency for others. Is this an essential mind ability, existing in all cultures, since it is so important for a functioning social life? Can our

theories imagine that we might approach other people without assuming that we can know something about what is going on in their heads? The assertion, widespread in many Pacific societies, is that it is impossible, or at least extremely difficult, to know what other people think or feel. We called this idea the doctrine of the "opacity of other minds". This might sound surprising, since in Pacific societies a person is not only understood as an individual entity, but also as relational, as a knot in a wider network of social relations.

The concepts of the "individual", the "self", and the "person" are essential in cultural anthropology and psychology, because in these fields the basic concern can be exemplified, such as the essential question of the human being's biological equality and at the same time his/her cultural diversity, and how this one is represented. How can such questions be researched? Is there not an insurmountable dilemma? Either one transfers Western tests to other cultures, as has been done by cross-cultural psychology, and which provides good comparability (though data that might be culturally not relevant), or one adapts the procedure to the respective culture and receives at least culturally fair results (which are, however, lacking comparability).

Is there a cognitive and emotional inventory of men, can it be changed or even repressed by culture? There are thought provoking studies, especially from the Pacific region, such as classic research of personhood, which should now be continued with the inclusion of the theory of mind and the connected set of problems of the opacity of mind. All these questions are posed against the backdrop of Pacific societies in transition, which are characterised by a growing influence of global media, global ideas, Christianity, and global goods.

This volume, *Theory of Mind in the Pacific. Reasoning across Cultures* is directed towards an audience of anthropologists, psychologists, as well as cognitive scientists. The results of five interdisciplinary research projects of anthropologists and psychologists are presented. Either, the researchers have closely worked together in the field – the ideal situation – or the psychologists arrived after the ethnographers left the field site.

The five Pacific societies and the respective research-teams were Eva Oberle (a psychologist) and Jochen Resch (anthropologist) on Fais and Yap Islands (Yap State, Federated States of Micronesia), Alexandra Tietz and Svenja Völkel in Tonga, Andreas Mayer and Julius Riese in Samoa, Mirjam Hölzel and Verena Keck among the Yupno (Papua New Guinea)

as well as Anita von Poser (anthropologist) and Bettina Ubl (psychologist) with the Bosmun (Papua New Guinea). The introduction is jointly written by Birgit Träuble and Christoph Konieczny, both psychologists, and Andrea Bender, an anthropologist, the final discussion has been authored by Jürg Wassmann, anthropologist and Joachim Funke, psychologist.

We would like to acknowledge the generous financial support of the Volkswagen Foundation, which sponsored this interdisciplinary research project as part of the overall project "Person, Space, and Memory in the Contemporary Pacific" at the Institute of Anthropology, University of Heidelberg, and therefore, enabled younger scholars, psychologists, and anthropologists, to conduct their field research in different parts of Oceania – a rather rare endeavour. Financial support for this publication was generously given by the Excellence Initiative`s funds – the Innovation Fund Frontier from Heidelberg University.

Note

1. Nestlé Smarties are a colour-varied sugarcoated chocolate confectionery, popular primarily in Canada, the United Kingdom, Ireland, Australia, Germany, France, Greece and South Africa. They can be compared to the US's M&Ms.

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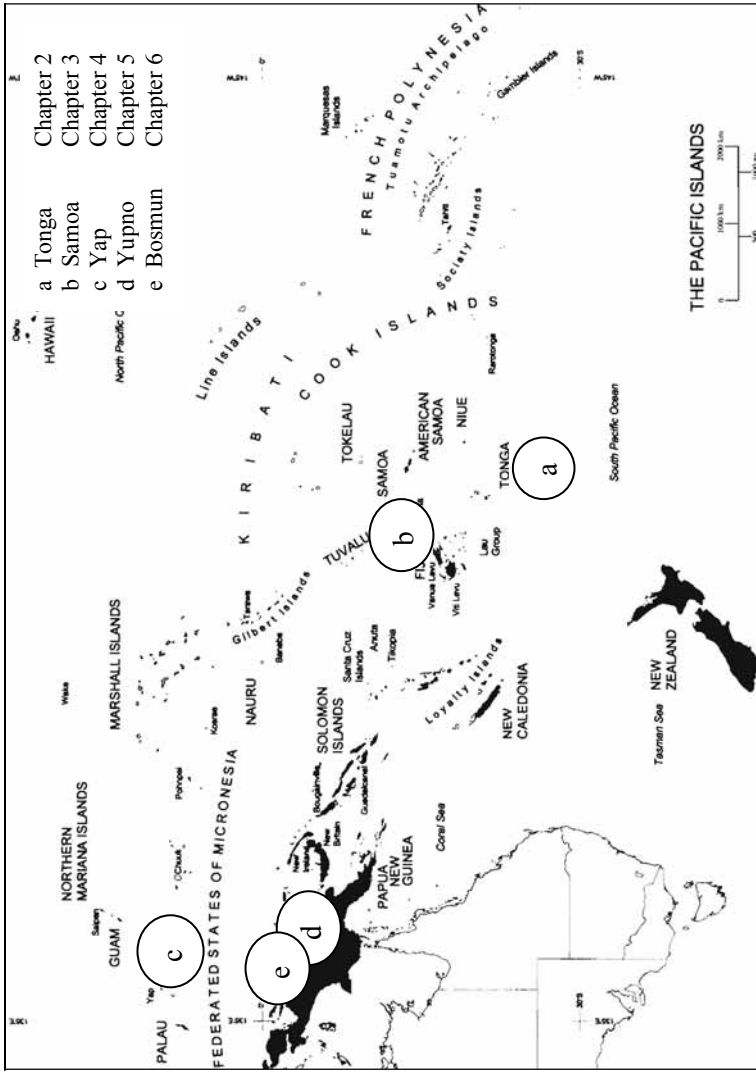
Astuti, R. 2012. Some After Dinner Thoughts on Theory of Mind. *Anthropology of this Century,* 3, January. http://aotcpress.com/articles/dinner-thoughts-theory-mind/ [25.5.2013].

The map overleaf, "The Pacific Islands", is re-printed here with permission from Andrew J. Strathern and Pamela J. Stewart (original in P.J. Stewart and A.J. Strathern 2002. Introduction. In A.J. Strathern, P.J. Stewart, L.M. Carucci, L. Poyer, R. Feinberg and C. Macpherson, *Oceania: An Introduction to the Cultures and Identities of Pacific Islanders*, pp. 2-7. Durham, N.C.: Carolina Academic Press).



Map Prol The Pacific Islands

GUSTAV JAHODA

Foreword: How We Got to Where We Are

The concerns of what have become the disciplines of anthropology and psychology have been overlapping for a very long time. Herodotus (c. 485-425 BC) travelled widely and collected extensive ethnographic data in Egypt, Babylonia, India, Persia, and Scythia (the region north of the Black Sea). The list of topics he covered is a long one including: race, looks, intelligence, virtues and vices, language, occupations and skills, food, sexuality and various rites such as naming and funerals. In addition to direct observation he also questioned local people. Well aware of the dangers of what we now call "ethnocentrism", he was rarely judgemental.

During the Middle Ages the "Others" were largely mythical, consisting notably of the so-called "monstrous races" (Friedman 1981). With the rapid expansion of travel and exploration in the 17th century a number of books of advice for travellers were published. Several of these, like Bernard Varen's (1650) *Geographica generalis*, listed various types of customs and institutions that should be recorded, and also mentioned the need to note the (psychological) dispositions of the people, their moral character, qualities, and abilities.

At the end of the 18th century a work appeared that could be regarded as the first modern fieldwork manual. Paradoxically, its author lacked any experience of the non-European world. Joseph-Marie Degérando (1772-1842) was a member of the *Société des Observateurs de l'Homme* which commissioned him to prepare notes for an expedition to Australasia, intended to include the study of savage peoples (Degérando [1800] 1969). At the outset he warned against pitfalls of a kind we would now call inadequate sampling and failures of communication, and recommended something closely similar to participant observation. He stressed the importance of language – his own sphere of expertise – and the need to avoid judging social institutions by the observers' own alien standards (i.e. ethnocentrism). Degérando also made numerous proposals for the study of psychological features, basing himself largely on the then

prevalent sensationism of Condillac. Many of the topics he discussed, such as sensory processes, intellectual abilities, memory, and child development later became important research areas for cross-cultural psychology.

During the 19th century many explorers, missionaries and travellers brought back information about socio-cultural and psychological aspects of "exotic" peoples, but these were usually fragmentary and unsystematic. Writers concerned with anthropological issues would collect such material and publish it in book form – it would be inappropriate to call them "armchair anthropologists" since they performed a useful function. Among the most prominent ones was Theodor Waitz (1821-1864), a scholar with a background in Herbartian psychology, who proclaimed the principle of "psychic unity". By contrast Adolf Bastian (1826-1905) travelled widely and his theories are based on first-hand experience. He had attended lectures by Lazarus, one of the founders of the first version of *Völkerpsychologie*, and later put forward the notion of *Elementargedanken* (elementary ideas) that are universal but modified in local contexts:

> A comparative psychology can only be established on the basis of ethnology, which traces in the various ethnic groups the genetic development of mental products and explains their local colouring in terms of geographical and historical contexts (Bastian 1868: XI).

Bastian considerably influenced Franz Boas (more about him below) with whom he worked for a time.

Like Bastian Edward Burnett Tylor (1832-1917), sometimes known as "the father of anthropology", saw the subject as relevant to psychology. His rationalist theory of the origins of magic and religion was essentially concerned with the nature of the human mind.

The end of the 19th century saw a radically new departure. The Cambridge (England) anthropologist Alfred Haddon was organizing an expedition to Torres Strait and took the – then very unusual – step of inviting the experimental psychologist William Halse Rivers (1864-1922) to take part; and Rivers himself recruited two more psychologists (Rivers 1901). All three worked on sensory processes, and the most significant contribution was made by Rivers who dealt with vision. What was new was not anthropological interest in psychology, but the involvement of professional psychologists working in the field. Although it marked the

beginning of cross-cultural experimental studies, it was then not a matter of cooperation between anthropologists and psychologists – they worked in parallel, apart from each other. Rivers himself, having become fascinated by social institutions, became a prominent anthropologist.

Mention should also be made of Richard Thurnwald (1869-1954), a German anthropologist with a deep interest in psychological issues. Before departing for New Guinea (to the Bismarck Archipelago and the Western Solomon Islands) he consulted a number of prominent German psychologists about his plans, and he did carry out a number of pioneering studies of cognitive topics (Thurnwald 1913).

All this evoked little response in either Britain or Germany from the mainstream psychology of the period, except for Frederic Bartlett who became a student of Rivers. Anthropologists were at that time trying to account for cross-cultural similarities, and often invoked psychological explanations. For instance Goldenweiser (1910: 287) proposed that "the phenomena of diffusion [are] replete with psychological problems". Similarly Boas (1910: 375f) proclaimed "the necessity of looking for the common psychological features, not in the outward similarities of ethnic phenomena, but in the similarity of psychological processes so far as these can be observed or inferred". As already noted, Boas had been inspired by Bastian and his psychological interest is reflected in the title of one of his most notable works, namely *The Mind of Primitive Man* (Boas 1911). Boas also pioneered the study of American Indian languages, which became the foundation of modern linguistics.

Two of his most eminent students were Margaret Mead and Ruth Benedict, both of whom were well versed in psychology. On her return from her field trip to New Guinea Mead told the young Jean Piaget that his writings about "animism", based on Geneva children, could not be generalised to children in other parts of the world. Probably because of the psychological implications of her writings, Mead long remained the only anthropologist whose name was mentioned in psychological texts. It might be said at this point that the relationship between the two disciplines has been, and to a considerable extent remains, an asymmetrical one: few psychologists displayed any active interest in the work of anthropologists, while the latter felt a need for some kind of psychology (this point will be further discussed in the epilogue). Malinowski, who had attended lectures in Leipzig by Wilhelm Wundt, the "father of experimental psychology", even invented his own psychology – though he owed a good deal to Freud, whose appeal was then increasing. The

importance of psychology for anthropologists was later epitomised by Claude Lévi-Strauss who wrote "L'ethnologie est d'abord une psychologie" (1962: 174).

Beginning from the mid-1930s the anthropologist Ralph Linton and the neo-Freudian psychiatrist Abram Kardiner embarked on a series of studies, which on the assumption derived from Benedict that personality and culture are structured in similar ways, sought to establish a causal relationship between them. For about a decade this movement flourished, but by the end of the Second World War was generally seen as, in Jerome Bruner's words, "a magnificent failure" (Bruner 1974). Yet the appeal of psychoanalysis persisted, especially in the Unites States where many anthropologists underwent analysis. One of them was John Whiting, who with Beatrice Whiting went on to conduct comparative studies of child development. That period also saw the rise of psychological anthropology, a special field in which anthropologists (usually well versed in psychology) tended to make use of psychological tools; but there was little joint research. The value of such joint research has been demonstrated by a study that has become a classic. It originated from a debate between the anthropologist Melville Herskovits, who thought that culture could influence perception, and the psychologist Donald Campbell who regarded that as very unlikely since he viewed perception as a purely physiological process. Their joint enterprise resulted in a book entitled *The Influence of Culture on Visual Perception* (Segall et al. 1966), though instead of "culture" it should perhaps read "ecology". Anthropological field workers, trained by psychologists, assessed susceptibility to visual illusions in various parts of the world. The hypotheses were based on ideas that had been put forward by Rivers more than half a century earlier. While the aim had been to resolve a theoretical issue, the fruitfulness of collaboration between an anthropologist and a psychologist in researching specific question in a particular culture has been shown by Wassmann and Dasen (1994a, 1994b, 1998) and Dasen and Wassmann (2008).

Returning to the 1960s, it also saw the rise of cross-cultural psychology (CCP), and during the following decade one still met sprinkling anthropologists (including Margaret Mead) at cross-cultural congresses, but that became increasingly rare; and the same applies to the *Journal of Cross-Cultural Psychology*. Probably one of the main reasons for the change was the decline in the number of psychologists who worked with indigenous peoples and the great increase of studies where

"culture" was equated with nations; and the methods employed frequently require(d) literate participants. However, that period also saw the rise of "cultural" – (as distinct from cross-cultural) psychology. Its theoretical stance is that culture and mind cannot be separated (Shweder 1990) – a topic that will be addressed again in the epilogue. Unlike much of CCP it is not concerned to discover universals, and its focus on particular cultures marks it as frequently straddling the boundaries of anthropology and psychology and its exponents are drawn from both disciplines.

This is a rough sketch of the history and current relationships between anthropology and psychology; it may be noted that so far nothing has been said about linguistics although it is closely concerned with certain broad problem areas. Examples would be the classical themes of colour perception and naming, where there has been considerable progress recently (Tan et al. 2008), or the relationship between language and thought, which continues to be debated. Another important area is emotion, where anthropologists and linguists study the meanings and boundaries of emotion terms. Psychologists, by contrast, are more concerned with the recognition of emotional expressions and the extent to which emotions are biologically based. It is not that anthropological approaches are completely ignored, but they are seen as relatively peripheral. For instance, a recent review article (Matsumoto and Hwang 2012) briefly refers to the work of such figures as Gerber, Howell, Lutz, and White; but less than half a page in an 18-page article is given over to that.

On the other hand as far as cognition – in a very broad sense – is concerned there has been historically, and there is even more now, a great deal in common between the two disciplines as far as their objectives are concerned. In the past that was not always explicit: when Edward Evans-Pritchard (1934) provided acute insights into Azande modes of thought, he was probably not supposing that he was doing psychology! These days the link tends to be quite clear from the outset, as in Maurice Bloch's (1998) *How We Think They Think* or Scott Atran's *Folk Biology and the Anthropology of Science: Cognitive Universals and Cultural Particulars* (1998). The "particular" may be exemplified by a developmental study conducted by a joint anthro-psycho team (Astuti et al. 2004) in Madagascar.

The present volume combines different elements from this broad tradition. It is the brainchild of Jürg Wassmann who has long been inter-

ested in problems where anthropological and psychological concerns overlap, and has favoured cross-disciplinary studies (Ammann et al 2013, Wassmann et al. 2011, n.d.). He has assembled a team of (mainly) anthropology PhD candidates with long fieldwork experience in the Pacific and Diploma candidates in Psychology, who did research in five different regions in the Pacific with the aim of testing an important theory of developmental psychology – a task often advocated by cross-cultural psychologists but all too seldom actually accomplished. Their careful work offers general support to the theory, while also documenting certain variations. The volume is thus an important one that substantially advances our knowledge, and as such should be welcomed by anthropologists and psychologists alike.

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BIRGIT TRÄUBLE, ANDREA BENDER and CHRISTOPH KONIECZNY

1 Human Social Cognition – The Theory of Mind Research

The attribution of mental states such as desires or beliefs is a milestone of human sociality. It is one of the abilities that we share, if at all, with only very few non-human species (e.g., Hare et al. 2000; Plotnik et al. 2006; Tschudin 2006; Bugnyar 2007; for a contrary position see Povinelli and Vonk 2003), and the extent to which we possess this ability is uniquely human. It is also regarded as the fundamental prerequisite for human culture (Tomasello 1999; Tomasello et al. 2005; Call 2009). Attributing mental states to others constitutes the core of each ethnopsychology (Lillard 1998), and the question of how a basic set of assumptions eventually gives rise to such a large variety of ethnopsychological theories is one of the most interesting challenges to both psychologists and anthropologists (Bender and Beller 2013). Yet, these lines of research are rarely related to each other, and particularly in psychology, the focus – for most of the time – remained on the core competencies. This introduction will therefore begin with a brief description of what constitutes the basic competencies related to a "theory of mind" and in which scientific context it has been explored. It will proceed by contrasting different theoretical accounts of how a theory of mind develops, and by discussing to what extent each of these accounts allow for cultural impact on the development process. General findings from studies conducted in Western cultures will then be presented, and the potential for an impact of culture will be discussed in the light of empirical evidence for cultural variation. This will also broaden the focus to adult theories of mind in the context of ethnopsychologies, and to how these may affect children developing awareness for mental states in others. As ethnographic details on each culture under scrutiny are provided at length in the case studies, only the most relevant aspects of Pacific ethnopsychologies will be briefly sketched in this section.

Understanding other minds – developmental perspectives

During the last twenty years, research on young children's knowledge about the mental world, better known as theory of mind research, has become a central topic in developmental psychology (e.g., Wellman 1990; Perner 1991; Astington 1993; Taylor 1996; Flavell 1999; Mitchell and Riggs 2000; Wellman et al. 2001; Saxe et al. 2004; Leslie 2005; Onishi and Baillargeon 2005; Ruffman and Perner 2005; Southgate et al. 2007). The term "theory of mind" was first introduced by Premack and Woodruff (1978) in order to describe the ability to impute mental states to oneself and others in order to explain and predict behaviour.

Already in the fifties, Piaget, undoubtedly the historically most influential psychologist in the field of children's cognitive development, was interested in the development of children's perspective taking (e.g., Piaget and Inhelder 1948/1971). What turns the new theory of mind research into an autonomous scientific field is its philosophical approach to mentalist aspects (Field 1978; Fodor 1978; Perner 1999). Accordingly, Perner (1991, see also Sodian and Thoermer 2006) proposed three criteria for a definition of the mental domain:

(i) We have direct access to our mental states. That is, we know about mental states like thoughts or emotions because we made respective experiences, and we can attribute mental states to others by taking their perspective.
(ii) Mental states can be used to infer and predict behaviour, therefore they serve as theoretical constructs within an intuitive behaviour theory.
(iii) And mental activities concentrate on objects ("thinking of something").

In the case of mental activities such target objects are "intentional", that is, mental target objects do not have to be existent (Brentano 1874/1955, coined the phrase "intentional inexistence"). Furthermore, mental target objects can be misrepresented. For example, the chocolate that I suppose to be in the cupboard is actually in the drawer. The understanding that mental states are not direct reflections of the reality but representations that may be true or false is typically referred to as "representational theory of mind".

Given the important role of theory of mind abilities for our social functioning (e.g., Tomasello et al. 2005; Call 2009), one would assume

that the developmental course of such an important competence should follow a similar trajectory across different cultures.

However, developmental research and the resultant theories on cognitive development have been and still are an enterprise of the West – and yet, they often claim universal validity. Looking back to the famous work of Jean Piaget, we find a meticulously elaborated model of different developmental stages children pass through from birth to adolescence. Piaget was interested in the source of human epistemic processes. He claimed that knowledge is not a state but is constructed by our interaction with the world ("constructivist epistemology"). On the basis of a large number of systematic observations and behavioural tasks, Piaget derived an invariant sequence of cognitive stages, each of which is characterised by a specific structure of knowledge. Even if, in later years, Piaget paid more attention to culture-specific aspects of human cognitive development, his primary focus was on the identification of basic universals of human cognition (quite in the sense of structuralist approaches). In subsequent work, Piaget's universality-assumption has been challenged in at least three different ways. First, cross-cultural studies allow testing the validity of the assumption that cognitive development follows the same trajectory over different individuals, cultures, and situations. So far, some of the existing cross-cultural studies cast the universality-assumption into doubt (e.g., Bang et al. 2007). However, although solely Western biased research takes the risk of providing only an ethnocentric view on the issues of interest, cross-cultural psychological studies are still scarce (Berry et al. 2002). Contrary to anthropological work with its primarily ethnographic methodology, these few cross-cultural psychological studies use controlled experiments. Second, Piaget's emphasis on constructivist aspects of the cognitive development hardly admits socio-cultural influences. The child selects and interprets environmental information in a primarily individualistic manner. Socio-cultural influences (e.g., by culture-specific products or by support from other individuals) do not play a crucial role. Here, again, cross-cultural research highlights the impact of socio-cultural factors on cognitive development. Third, recent research has shown that the assumption of a synchronicity of developmental changes across different domains (e.g., social, physical, or mathematical domain) is not scientifically tenable. As a consequence, the so-called domain-specific theories describe knowledge acquisition by distinct processes operating in different domains.

Accordingly, Piaget's assumptions concerning specific age-related stages have been subject of a large number of studies. Using new methods, suitable even for very young children, it has been shown that Piaget might have underestimated children's cognitive competencies. For instance, even two-year-olds are now considered to be able to take another's visual perspective, whereas Piaget postulated such a competency to occur not before the age of six years. Yet, although domain-specific research has cast the Piagetian age statements into doubt, even this approach assumes universal basic competencies that are common to all humans in every culture. Concretely, domain-specific accounts assume that, from the very beginning, we are endowed with so-called core knowledge about a few but highly important and reliable principles in different knowledge domains. For example, infants know that animate beings, but not inanimate objects, can move on their own. Meanwhile, many of these core principles have been identified in a great number of infancy-studies (e.g., Hermer and Spelke 1996; Xu and Spelke 2000; Spelke 2003). Elizabeth Spelke, originator of this core knowledge hypothesis, currently postulates five universal core knowledge systems: two systems for the representation of inanimate objects on the one side and animate agents on the other side, as well as two systems for the representation of more abstract entities like number and geometric forms. Finally, a fifth core knowledge system for the representation of social groups is discussed (Spelke and Kinzler 2007; Kinzler and Spelke 2007). Subsequent development, according to this approach, consists in a gradual enrichment of these core knowledge systems. This enrichment process is determined by the information available in a given environmental context. Thus, the assumption of a universal cognitive basis also implies that socio-cultural factors might influence the formation of mature knowledge systems (e.g., Hespos and Spelke 2004).

Theory of mind development – theoretical impacts

The precise course of the development within the social domain, and particularly the developmental processes regarding the acquisition of a theory of mind, are still subject to debate. Different accounts can be distinguished, each of which claiming more or less impact of external factors on theory of mind development.

(a) In modular accounts (e.g., Leslie 1994; Baron-Cohen 1995), it is assumed that the underlying cognitive structure responsible for a theory

of mind is an innate module, that is activated within the first three years of life. These modules are confined to process highly specific information that is relevant for mentalist interpretations. They are dedicated, automatic, and encapsulated, and their functioning is largely independent of individual differences and social experiences.

(b) Theory theory accounts (e.g., Carey 1985; Gopnik and Meltzoff 1997; Wellman and Gelman 1998) suggest that mental states such as beliefs are theoretical entities within a naïve theory that allows to draw inferences and to make predictions on the basis of one's own or another person's mental states. During development, these naïve theories are subject to fundamental changes from a non-representational theory of mind in three-year-olds to a full-fledged theory of mind in five-year-olds, according to which mental states are understood as independent from reality.

(c) In simulation theories (e.g., Harris 1992; Tomasello and Rakoczy 2003), it is assumed that mental interpretations are not based on theory-like constructs but on the direct experience of our own inner mental processes. According to this view, it is possible to infer other people's intentions and future actions by using our own mind as a model for theirs.

(d) Social-constructivist approaches emphasise the role of experiences in social interactions (e.g., Carpendale and Lewis 2004). They assume that children actively construct a theory of mind in their interaction with other individuals. Specific social experiences are discussed as potential cause for individual differences (and also for cultural differences). For example, the amount and the manner of verbal communication about mental processes seem to have an effect on the development of a theory of mind (e.g., Bartsch and Wellman 1995; Astington and Jenkins 1999; Harris 1999).

(e) Other theoretical approaches focus on domain-general processes that might underlay developmental changes in domain-specific abilities. For a theory of mind to develop, several factors are discussed: changes in working memory (i.e., structures and processes responsible for temporarily storing and manipulating information), executive functions (i.e., general cognitive abilities responsible for planning, cognitive flexibility, abstract thinking, rule acquisition, etc.) or general inference processes (e.g., Bischof-Köhler 2000; Carlson and Moses 2001).

With respect to the universality aspect of theory of mind development, it is first and foremost constructivist accounts like the theory

theory, and the social-constructivist accounts that open the scope for culture-specific influences. These theoretical considerations emphasise the relevance of and the need for cross-cultural research in order to clarify important questions about the ontogeny of our theory of mind competencies, including the question of which aspects of this development are due to nature or nurture. However, as already mentioned, most of the empirical work has been and still is done in the West, and the challenge now is to find out which aspects of the developmental trajectory identified in Western cultures can or cannot be generalised to other cultural regions. This would also enable us to learn more about potential socio-cultural factors that influence the acquisition of theory of mind competencies.

What does Western research tell us about the theory of mind development?

Being interested in the ontogeny of a representational theory of mind, a large number of studies concentrate on the very first beginnings of such competencies. When do children first come to understand the specific characteristics of the social world (interactions with other persons) in contrast to the physical world (actions on inanimate objects)? Within the psychological domain, the question arises of when children come to ascribe psychological states to themselves and to others, and whether these states are understood as mental states according to the criteria described above.

The discrimination between the psychological or social domain on the one side and the physical domain on the other is assumed to be one of the precursors for developing a theory of mind. An increasing number of developmental studies meanwhile suggest that infants distinguish these two domains even by birth (e.g., Spelke 1994; Gelman et al. 1995; Pauen 2000; Rakison and Poulin-Dubois 2001). Within the first half of the first year of life, infants not only differentiate between animate beings and inanimate objects, they also hold different expectations about the behaviour of both kinds of entity (e.g., Legerstee 1992; Flavell et al. 1993; Meltzoff 1995; Spelke et al. 1995; Woodward 2003; Pauen and Träuble 2009; Träuble et al. 2009). For example, regarding early dyadic interactions between infant and caregiver, infants expect highly specific contingency patterns (that is, they are confused if the reciprocal character

of the interaction is disturbed); some authors interpret these signs of "primary intersubjectivity" (Trevarthen 1979) as precursors for later arising mind-reading competencies (Gergely and Watson 1999). Research with somewhat older children suggests that, within their second year of life, children understand that desires of other individuals can differ from their own desires (e.g., Carpenter et al. 1998, 2002), and they further seem to understand that goal-directed actions are based on prior intentions. In sum, such results show that children at the age of about two to three years seem to represent mental states as internal experiences, and they use mental states to predict behaviour. However, it is still not clear when children come to understand the independency of epistemic states (such as knowing or believing) from reality (see the third of the criteria described above). In tackling this question, the so-called false belief task has become the empirical acid test for a representational theory of mind.

In order to pass a false belief (FB) task children have to compute what another person will do on the basis of a false belief. The now classic FB task – the *Maxi and the chocolate task* – (Wimmer and Perner 1983) includes a story about an unexpected object transfer. The child is presented with the following scenario: Maxi puts his chocolate into the cupboard and leaves the room. While Maxi is away, his mother takes the chocolate out of the cupboard and puts it into the drawer. Maxi comes back. Where will he look for the chocolate? A correct answer to that question demonstrates that the child knows that Maxi's action depends on his (false) belief rather than on the real situation.

A consistent finding across a large number of studies using this task is that four- to five-year-olds pass this task, asserting that Maxi will search in the cupboard, the original location of the chocolate. These findings have been interpreted as evidence for the assumption that younger children, who do not pass this test, lack the understanding that another person has a representation of the world that might be true or false, and that it is this representation that determines the person's behaviour (e.g., Wellman et al. 2001). The prediction of another person's behaviour on the basis of a true belief, in contrast, does not provide a stringent task because here belief coincides with reality, and it is not clear whether the action is governed by mental state or by physical reality.

Another type of the FB task, the so-called "Representational Change Paradigm" (e.g., Gopnik and Astington 1988), taps into children's representations of their own false beliefs: The child sees a familiar container

(e.g., a Smarties box) by the conventional content replaced with an unconventional content (e.g., crayons). First the child is asked about the content of the box. After being shown the actual content of the box, the child is asked "What did you think was in the box when I first showed it to you?" Sometimes the child is additionally asked what another person would think is in the box (before he or she sees its actual content). This question is the same as in the false belief task described above. Again, while four- to five-year-olds pass this task, most three-year-olds have difficulties: Children of this age typically report that there are Smarties in the box, and yet, later on they claim that they thought there were crayons in it. They also report that another person thinks there are crayons in the Smarties box although the person has never seen its actual content.

In sum, results from Western research suggest that, while basic social-cognitive skills (for example the understanding of goal-directed behaviour and intentions) seem to be developed at the age about two to three years, an understanding of the representational nature of epistemic states, as it is tested with tasks like the *Maxi and the chocolate task*, can only be found later, at the age of four to five years.

Why studying different cultures?

In a nutshell, cross-cultural research so far has provided considerable support for the assumption that children's theories of mind develop widely irrespective of the cultural context (see overview in Bender and Beller 2013).

With regard to the early emergence of basic social-cognitive skills, Callaghan and colleagues (2011) recently tested such precursors of an elaborated theory of mind among children from three different cultures (Canada, India, and Peru). They found cultural differences neither in the emergence of very basic social-cognitive skills like understanding the intentions and attention of others, nor in early interactive skills like joint attention and collaboration. However, cultural differences were found in acquisition of skills that children have to learn directly from adults like the use of external symbols (e.g., pretended actions and pictorial symbols), thus suggesting cultural influences on this kind of social-cognitive development. Regarding the similar developmental trajectories in the more basic social-cognitive skills, the authors refer to Gaskins (2006) who claims that similar early developmental trajectories in different cul-

tures might be either due to the fact that the ontogeny of the skills at hand "depend very little, if at all, on environmental input", or to the fact that "all cultural settings provide enough of the right kind of social experiences for species-typical ontogeny" (cited in Callaghan et al. 2011: 110).

With regard to the later development of epistemic state understanding, some recent research suggests cross-cultural synchrony in the onset of such mentalist reasoning, and especially of false belief understanding (e.g., Callaghan et al. 2005; Sabbagh et al. 2006; Wellman et al. 2006). If correct, such a synchrony would strengthen the assumption of universal biological maturation processes as one of the main factors responsible for the onset of false belief understanding at the age of four to five years. At least, these findings seem to leave not much leeway for a deep impact of cultural experiences on the age of onset. However, several caveats should be considered here.

First, as suggested by Avis and Harris (1991), synchrony in the onset of mental state reasoning does not preclude diversity in outcome. The authors argue that even if there is a universal understanding of mentalist processes at some point in the development, the acquisition processes may differ due to different cultural backgrounds (see also Lillard 1998; Callaghan et al. 2005). In short, it is not clear whether cross-cultural developmental synchrony can be attributed to universal developmental processes. To give just one example, Sabbagh et al. (2006) tested Chinese and U.S. preschoolers with tasks on theory of mind abilities and executive functioning – general cognitive abilities that are assumed to affect the developmental timetable of false belief. Chinese children outperformed U.S. preschoolers on all measures of executive functioning, but were not advanced in theory of mind tasks. Nonetheless, individual differences in executive functioning tasks predicted theory of mind performances in both cultures. The authors suggest that these findings – cross-cultural differences in executive functioning, but no cross-cultural differences in theory of mind competencies – could be interpreted in line with an "emergence hypothesis". According to this hypothesis, domain-general executive functioning skills enable children to more fully capitalise on domain-specific experiential factors to foster the conceptual developments necessary for theory of mind (Sabbagh et al. 2006: 80). Therefore the Chinese children did not profit from advanced executive functioning because they have less exposure to the experiential factors that might be important for a theory of mind development.

The second caveat refers to the database itself. Contrary to the claim made by Callaghan et al. (2005) – and supported by their own study – the available data simply does not confirm a total synchrony in the onset of mental state reasoning across cultures. The Samoan children in their study were significantly older than the other cultural groups when they passed the false belief test. In a similar manner, the comparison of two North-American and two Chinese groups yielded equal trajectories of development, yet significant differences in their onset (Liu et al. 2008). And Junín Quechua children acquire an understanding of representational changes and false beliefs well after succeeding in appearance reality distinction (Vinden 1996).

It is important to note that – although it may not seem very impressive to find slightly different ages for passing the false belief task – this is literally the only cultural difference to be expected for so essential a process. What, then, could be reasons for these differences in time scale?

In Western cultures, a large number of potential factors have been subject of research. For example, the amount of mental state talk in the parent-child interaction as well as the general amount of verbal conversation with others seems to predict later performance in false belief tasks (e.g., Meins 1997; Ruffman et al. 2002; Meins et al. 2002). As stated by Callaghan et al. (2005), conversation brings others' mental views to light and supports the acquisition of mental vocabulary (see also Meins et al. 2002; Peterson and Slaughter 2003). Other experience-dependent factors include language abilities (e.g., Astington and Jenkins 1999; Lockl et al. 2004), number of siblings (e.g., Perner et al. 1994; Jenkins and Astington 1996), the type of play behaviour and particularly role playing games (e.g., Youngblade and Dunn 1995), emotion understanding (Dunn 1995), or social-cognitive precursors in infancy, like imitation, joint attention, or intention understanding (e.g., Tomasello 1999; Gergely et al. 2002).

Much of this is related to mere language exposure (Miller 2006). In addition to the research just mentioned, the most convincing support in this regard is provided by studies on non-native signers – deaf children of hearing parents – which are considerably slowed down in acquiring competencies related to theory of mind, most likely due to insufficient linguistic input (Woolfe et al. 2002). Apparently, language plays a crucial role in raising awareness for mental states. Whether this is due to specific linguistic features such as lexical items explicating false beliefs (Tardif et al. 2004) or sentences with complement structure (de Villiers and Pyers 2002) or whether this is due to language experience in a more

general sense (Cheung et al. 2004) remains a topic of debate. Of course, this prominent role of language for theory of mind also raises a methodological concern, namely that success in a verbal false belief task may be confounded with linguistic competence – or with the availability of the linguistic toolkit in one's language. To circumvent this problem, Call and Tomasello (1999) designed a nonverbal false belief task equivalent to the classic verbal task version.

In addition to communication experiences, decidedly culture-specific factors such as certain ethical values may have an impact on mental reasoning. For instance, lie and deception, which are often used in Western research to test whether children can manipulate others' minds, could be proscribed in certain cultures. Aspects of social hierarchy or religion may also play an important role (for detailed descriptions see Knight 2008).

Of particular interest in this regard is the way in which adult theories of mind are conceptualised within a given culture, and to what extent mentalist reasoning is topicalised. How people structure the psychological domain, which mental states and processes they distinguish, and how these relate to each other, differs largely across cultures (for reviews see Lillard 1998; Thomas 2001; Vinden and Astington 2005). While some cultures elaborate this domain, others barely conceptualise it, and this in turn affects whether, and how, parents (and other caregivers) will talk to their children about mental states. But even if a specific culture provides an extensive terminology and even a formal psychological theory, this does not necessarily imply that its members routinely take other people's perspective. In a collaborative task adopted by Wu and Keysar (2007), US Americans – in marked contrast to the Chinese participants – had considerable difficulties to take their partner's perspective. These findings are interesting because they show how the competency (or willingness) to take into account another person's mental state may change during lifetime. Even more important is their implication for a cultural impact on developing the competency in the first place.

There is at least some empirical support for the assumption that the cultural evaluation of mental reasoning affects both, the way in which people communicate about mental states and what children learn from this communication. The attempt to gain a first-person-like perspective on others (sometimes referred to as "empathy") is not valued similarly, and not even always positively, in different cultures (Hollan and Throop 2008). In several cases, it may be considered an intrusion or attack, a

threat of blatant harm or at least shame and humiliation (e.g., Duranti 1993; Briggs 2008; Throop 2008). If in a culture the "opacity of mind" (Robbins and Rumsey 2008) is not only a presumption, but even an ideal strived for, attempts in reading others' minds – and respective competencies – may simply not be encouraged.

In at least two of the three exceptional cases referred to above, a later onset in mental state reasoning seems to correspond to such a cultural discouraging of perspective taking. The Quechua, for instance (like other Andean groups; e.g., Núñez and Sweetser 2006), appear to be more concerned with what one can objectively know as contrasted to what one has to infer, and generally make little use of lexical items for mental states (Vinden 1996). A similar reluctance to speculate about feelings, intentions or thoughts of others has been reported for several Pacific societies like Samoa (Shore 1982; Ochs and Schieffelin 1984: 298f; Gerber 1985: 133; Ochs 1988; Mageo 1998, 2011; Duranti 2008), Tonga (Morton 1996; Bender et al. 2007, Bender 2008a; Völkel 2010), Yap (Throop 2008, 2010a, 2010b, 2011), Anuta (a Polynesian outlier in the Solomon Islands, Feinberg 1983, 2011), Tuvalu (Besnier 1993), and Korowai in West Papua (Stasch 2008). In these cultures, a strong emphasis on secrecy, concealment, privacy, and the virtue of self-governance appears to be linked to the notion of opaque minds (Robbins and Rumsey 2008), according to which it is almost impossible to know anything about others' mental states. Minds are conceived of as unfathomable and thus not relevant (Ochs 1988), and people are consequently more concerned with effects of actions than with their causes such as motives or intentions (Shore 1982; Throop 2008). As Keane (2008) puts it, these opacity claims may be less about what people believe with regard to intentions and more about how they talk about them or, more precisely, what they consider desirable and/or legitimate to express in public. However, given the above mentioned importance of mental state talk for the emergence of theory of mind related skills (Miller 2006) and, more generally, the importance of linguistic interactions for the construction of notions of personhood (e.g., Ochs 1988), the amount of public talking – or refraining from talking – on others' mental states would certainly affect the ease with which children acquire such notions.

In their essay on how culture affects the understanding of other minds, Vinden and Astington (2005: 510) argue that 'mind' is a culturally constituted entity – certainly as a theoretical concept and probably even as a part of each person. The whole idea of investigating a theory of

mind cross-culturally may thus arise from our "cultural 'obsession' with minds". To obtain a more comprehensive picture of what are core concepts and theories in other parts of the world and of how these are constituted by culture, Vinden and Astington advocate an entirely different approach. Questioning the universal basis for a theory of mind, they suggest to refrain from simply adapting tasks developed in the Western world for comparative use in other cultures. Rather, researchers should start from a concept of person instead of mind, and should examine how such notions are constructed, for instance, during language acquisition. While we agree, in principle, with a stronger emphasis on the cultural contexts in which such notions are embedded, we argue that the conclusions are overstretched (see also Bender and Beller 2013). Taking the label "theory of mind" as a starting point for comparing adult theories of mind and then concluding from the amount of cultural variation that the basic theory of mind is in itself a cultural construct, puts too strong an emphasis on the label. "Theory of mind" is, or at least was in its beginning, simply a metaphor for the ability to ascribe mental states (i.e., a specific mental representation distinct from one's own representation) to another person. Whether or not a culture conceptualises mind as a relevant entity or focuses on representations as motivators for behaviour, the ability per se is a human universal, and the false belief task is an adequate method to assess this ability – given that it is modified to be adapted to a specific cultural context.

The present work

Like recent research done by Callaghan and colleagues (2011), the studies presented in this book are concerned with cross-cultural differences in development. However, whereas Callaghan and colleagues focus on basic social-cognitive skills, the following case studies explore the understanding of false beliefs. Accordingly, almost all of the experimental studies include appropriately adapted versions of the above-mentioned false belief tasks with the modifications thoroughly deduced and justified on the basis of each cultural context. As will be seen, the region under scrutiny – Oceania in the Western Pacific – is characterised by ethnographical specifics that might be of potential relevance for the emergence of epistemic understanding, at least from the viewpoint of constructivist accounts to social-cognitive development.

Oceania consists of three large cultural and linguistic clusters: Melanesia in the south comprises New Guinea and the island groups of New Caledonia, the Solomons, Vanuatu, and Fiji; Micronesia in the north comprises the island groups from Palau across the Marianas and Marshall islands into Kiribati; and Polynesia in the east comprises the island groups in the triangle between New Zealand, Hawai'i and Easter Island (Rapanui). These large areas can be distinguished on the basis of gross cultural and linguistic characteristics, but are far from being homogenous. This is most evident for Melanesia, which is inhabited by two entirely distinct populations: Papuan groups who colonised New Guinea and parts of the Solomons some 50,000 years ago, and Austronesian speaking seafarers who arrived there about 3500 years ago and went on eastwards to settle almost all inhabitable islands of the Pacific. In contrast to the largely egalitarian Papuan groups, Austronesians tended to have a socio-political organization largely based on rank and primogeniture. Heterogeneity is less extreme, but still pronounced in Micronesia, whose western part was colonised directly from Southeast Asia, whereas the settlers in the eastern part had arrived there from the south and had brought with them a mixture of Melanesian and Polynesian cultural elements. Polynesia itself is the most homogenous area, with closely related languages and similar cultural traits throughout their area of settlement.

The groups addressed in the following case studies thus barely share any cultural tradition across board, but they do share important features with their neighbours. Bosmun and Yupno (Melanesia), for instance, are Papuan people living in the northeastern part of New Guinea. They speak unrelated languages, but share cultural characteristics pertaining to subsistence, socio-political organisation, and religion. Despite their geographical neighbourhood, inhabitants of the Micronesian islands Yap and Fais are separated by linguistic and cultural heritage (the former was colonised from the west, the latter from the east), yet intertwined in tight socio-economic relations over a long period of time. Tonga and Samoa in Western Polynesia, finally, constitute the most closely related pair in our sample in terms of language, culture and history, interconnected by trading (and raiding), political alliances and interferences, and the exchange of valuables and spouses.

Given this diverse background, it appears rather unlikely that single traits of potential relevance for theory of mind emergence were shared by all the groups under scrutiny here, thus preventing overall hypotheses and predictions. In fact, this very diversity in cultural traits, loosely kept

together by some shared environment, opens up the possibility to scrutinise the general assumptions that are all too often left unchecked (cf. Henrich et al. 2010).

And yet, several factors can be identified that are characteristic of at least some parts of Oceania (albeit perhaps not exclusive to it). One of these potentially influential factors is the cultural emphasis on mutual support and sharing – ranging from the institution of food-sharing (Bender et al. 2002) through the wide-spread practice of adoption (Carroll 1970; Brady 1976; Dickerson-Putman and Schachter 2008; Rauchholz 2009) to extensive socio-economic exchange systems like the *kula* ring in the Massim area of New Guinea (Malinowski 1922), the *tee* and *moka* system in Highland Papua New Guinea (Strathern 1971; Feil 1980; Görlich 1992), the *kerekere* system on Fiji (Sahlins 1962), or the trading relations and tribute systems between Yap and the central Caroline Islands (Alkire 1977). In the cultures under scrutiny here, such institutions are attested to at least for the Bosmun (*ramkandiar*; cf. Chapter 6, von Poser and Ubl, this volume), Yap and its outliers (*sawei*; cf. Chapter 4, Oberle and Resch, this volume), and Tonga (Bender 2008b), but are likely to occur in the other groups as well. The imperative concern for other people and their needs, however, may foster diverging behaviour and may thus have diverse implications for the emergence of theory of mind, depending on how explicitly a desire is to be expressed. In some cases, requests are explicated (Beller et al. 2009), whereas in others, the obligation to discern a desire lies with the addressee (cf. Chapter 6, von Poser and Ubl, this volume). As a consequence, demands on mind-reading abilities may differ widely.

Related to this is a focus on relationships for the construction of identity and personhood (e.g., White and Kirkpatrick 1985; and cf. Chapter 7, Wassmann and Funke, this volume). This sociocentric concept is partly reflected in the willingness to provide, and accept, company in almost all activities, from garden work to eating and resting. Depending on the principles for social structure, this social embeddedness may also involve considerations of relative rank and compliance to the respective rules of conduct (as in Polynesian and Micronesian societies) or, conversely, striving for unstressed ties to one's group members. The former is described in detail by Tietz and Völkel (Chapter 2, this volume) for the Tongan concept of person, which emphasises the social position of people in the network of hierarchical relationships (cf. Morton 1996). The latter is elaborated by Hölzel and Keck (Chapter 5 this volume) for

the Yupno, who base their concept of personhood on the ideal of a socially integrated, slightly bent person, which is on par with others and entertains good and relaxed social relations that are characterised and reinforced by reciprocity (Keck 2005; Wassmann 1993, n.d.).

And finally, an important factor that seems to have some wider dissemination is concerned with the local conception of what one can possibly know about mental states of other people in the first place. This has been discussed above in connection with empathy (Hollan and Throop 2008; Throop 2008) and the doctrine of the opacity of other minds (Robbins and Rumsey 2008). If people do subscribe to this doctrine, they should be more reluctant to speculate on mental states, which in turn is likely to affect how easily their children will pick up on them.

In sum, conducting experimental research on theory of mind development presupposes both detailed information about the specific characteristics of a given culture (social interactions, specifics of child-rearing, etc.) as well as psychological and methodological expertise. Combining these two approaches thus creates synergies that allow carefully elaborated and well justified methodological adjustments of paradigms typically used in Western cultures as well as profound and valid data interpretation.

The work presented in this book fulfills this demand in an exemplary manner. Given the close cooperation between students of developmental psychology and cultural anthropology working together in the field, this book provides a valuable contribution to current cross-cultural research on theory of mind development, thereby throwing light on one of the developmental milestones in human social cognition.

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ALEXANDRA TIETZ and SVENJA VÖLKEL

2 Theory of Mind in Tonga: The Onset of Representational Change and False Belief Understanding in Tongan Children

This interdisciplinary research is a collaboration of Alexandra Tietz who undertook this research as part of her Master's degree in psychology at the University of Heidelberg (Germany) and Svenja Völkel who completed her dissertation on Tonga in the field of linguistic anthropology at the University of Mainz (Germany). Therefore, she had conducted ethnographic fieldwork in 2002-2003 and 2004.

Both met within the cross-cultural project "Person, Space and Memory in the Contemporary Pacific" (Wassmann and Keck 2007: 1) and decided to carry out this ethnopsychological project on Tongan children together. The study was undertaken in the Polynesian island state of Tonga from July to October 2007. Before the actual data collection, Völkel introduced Tietz into the ethnographic setting. After discussing the culture-specific characteristics with relevance for the experimental investigation of theory of mind development in Tongan children, the chosen experimental designs were adapted to the local ethnographic setting by both authors. To ensure cultural appropriateness and practicability of the experiments, pre-trials were carried out. The experimental designs then underwent final alterations. The actual two experiments were then conducted by Tietz on several Tongan islands (Tongatapu, Vava'u and 'Eua). After the fieldwork, both finally discussed the results from anthropological and theoretical perspectives. The joint project was a reciprocal enrichment.

Introduction

The study at hand is dealing with the cross-cultural investigation of Theory of Mind (ToM); the human ability to interpret each other's actions in terms of underlying mental states, i.e. an actor's beliefs, desires

and emotions (Wellman et al. 2001). More specifically, this research probes Tongan children's conception of false belief; the ability to understand that people may represent objects and events inaccurately. To realise that someone may hold a belief that contradicts reality provides compelling evidence for a distinction between mind and reality: The representation of an inaccurate belief requires a mental representation of both reality and the other person's assumption. Therefore, false belief tasks appear to be an adequate means of investigating theory of mind comprehension. Furthermore, an individual must be able to mentally represent her/his own prior false belief once the actual nature of an event or an object has been discovered, hence, one has to perform a representational change of her/his own belief.

The question is at which age do humans gain an understanding of false belief? The majority of research suggests that such mental state reasoning gradually develops within childhood and is largely matured by the age of five (Wellman et al. 2001). Research using so called "false belief tasks" to test children's belief comprehension shows that while three-year-old predominantly fail, five-year-old children pass those tests in the majority of cases (Wellman et al. 2001). On the basis of these results, theory-theorists argue that an underlying conceptual change is responsible for the improved performance by the age of five (Gopnik and Meltzoff 1997; Wellman and Gelman 1998). According to these researchers, children attain a representational theory of mind at this stage via an emerging domain general mechanism of theory formation (Gopnik 1993).

However, the vast amount of false belief studies was conducted in Western or respectively industrialised countries with according subjects. The few studies that examine the onset of false belief understanding in non-Western cultures draw a heterogeneous picture. Some of this cross-cultural research proposes that non-Western children also develop a theory of mind understanding by the age of five, supporting the notion of universality (Callaghan et al. 2005). Other studies suggest that cultures do differ in the onset of theory of mind, emphasising a variability of mental state reasoning (Vinden 1996).

Thus, the question arises if the development of a theory of mind follows a universal age related pattern irrespectively from culture? Or is it indeed culturally specific? The study at hand aims to clarify this question by means of a non-Western sample. Previous research about theory of mind development shall be complemented by investigating the onset of

false belief understanding in Tongan children aged between three and six. Specific questions asked are: At which age do Tongan children gain an understanding of false belief? Is there an improvement of performance between the age of three and five as suggested by a vast amount of studies with Western subjects? Or do Tongan children attain a theory of mind at a different age?

If the development of false belief understanding is indeed universal and due to an underlying conceptual change, the performance of Tongan children should be comparable to Western participants. In this case:

(i) Regarding the "change of location task", three- to four-year-old children would predominantly give wrong answers, that is, fail to understand that the other person has a belief which differs from their own one. In contrast, five- and six-year-old children would generally name the correct option, or more specifically, comprehend that the experimenter is missing information, and hence, holds a false belief.

(ii) With respect to the "deceptive container task", under five-year-old subjects would predominantly fail not only the representational change but also the false belief question. In contrast, five- and six-year-old participants would correctly perform a representational change of their own prior false belief and show an understanding of the other person's false belief.

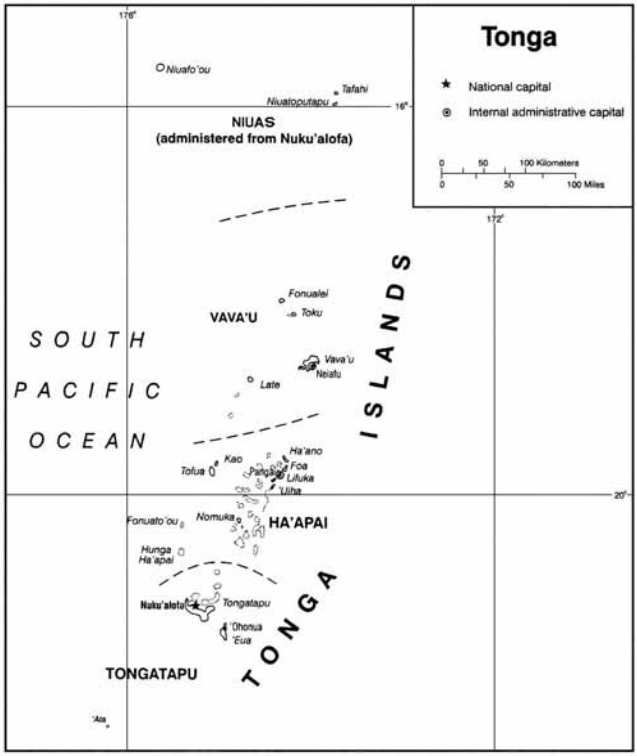
Differing outcomes would, however, support the notion of culture-specific variation of a theory of mind development.

Two different experimental paradigms were chosen to test Tongan children's false belief understanding. The experimental procedure, material and the undertaken adjustments of the selected false belief tasks will be presented in section "Experimental designs". To understand in particular the culture-specific adaptations of the experimental designs, the ethnographic setting will be introduced in the following section "Ethnographic setting". It shall provide the reader with basic information about Tonga, the locations of the experiments and fundamental aspects of Tongan culture such as the context of childhood, socialisation and social structure. The subsequent section is dedicated to the gained results which will finally be discussed in the cultural and theoretical context in section "Ethnopsychological discussion."

Ethnographic setting

Tonga

The Kingdom of Tonga is an archipelago in the South Pacific, which culturally belongs to Polynesia. It consists of more than 150 islands which are located southeast of Fiji, southwest of Western Samoa and northeast of New Zealand.



Map 2.1: The Islands of Tonga

The population of about 102,000 is distributed over the 36 inhabited mainly low and raised coral islands (van der Grijp 1993: 12-13; Tongan Government 2006). As there has been no major immigration, more than

95% of the population are Tongans. The remaining inhabitants are part-Tongans, Europeans, other Pacific Islanders and Asians (Tongan Government 2006). A great number of Tongans live overseas. They mainly migrated to New Zealand, Australia and the United States.

For administrative purposes, Tonga is divided into three main groups: Tongatapu, Haʻapai and Vavaʻu (cf. map 2.1).

The Tongatapu group in the south includes Tongatapu island with the capital Nukuʻalofa, ʻEua and some smaller islands. The Haʻapai group consists of mainly small islands of which the biggest island is Lifuka with the regional capital of Pangai. The regional capital of the Vavaʻu group in the north is Neiafu, which is famous for its natural harbour. The Vavaʻu group also includes the remote volcanic islands Niuatoputapu and Niuafoʻou (also called the Niuas) in the far north, which are administered from Nukuʻalofa. The regional capitals of each island group are the politico-juridical, cultural, commercial, educational and administrative centres of the island group, i.e. there is a local market, secondary schools, a hospital, a police station, a post office, a harbour etc. However, only the capital Nukuʻalofa with a population of nearly 23,700 is considered as an urban and commercial centre of Tonga. The outer islands usually have a less developed infrastructure; the smaller ones are often even without electricity, running water or telecommunication (Tupouniua 1977: 1; van der Grijp 1993: 13-14; Tongan Government 2006).

Apart from the native language Tongan, belonging to the Polynesian subgroup of the Oceanic language family, English is the second official language in Tonga. Both languages are learnt in school. However, Tongan is generally acquired prior to English, and especially elderly people as well as preschool children quite often have no or only little English knowledge (own observations).

Childhood and socialisation

Children in Tonga are raised in the context of family, village community and educational facilities. This social environment determines a child's daily life, and its fundamental structures have a strong impact on child socialisation.

Therefore, in an ethnopsychological study on three- to six-year-old children in Tonga, culture-specific aspects of their environment (such as social structure, socialisation and childhood in Tonga) have to be taken

into consideration. This means that the experimental design has to be adapted to cultural conditions (cf. "Experimental design") just as the results have to be discussed in the cultural context (cf. "Ethnopsychological discussion").

Children are regarded as *vale*, i.e. without knowledge and social competence. Accordingly, they are ascribed characteristics, such as *kākā* ("cunning, to cheat, trickery"), *fakapikopiko* ("lazy"), *fakahoha'a* ("troublesome, annoying"), *fakahela* ("tiring"), *fakasesele* ("silly") and *launoa* ("talking nonsense"). About the age of four to eleven, they are beginning to become *poto* ("smart, clever, socially competent"), a process that has made significant progress until the end of primary education. By then, children should have learned appropriate behaviour according to context and Tongan values (*anga fakatonga*), such as respect (*faka'apa'apa*) and obedience (*talangofua*), love and concern (*'ofa*), mutual support (*fetokoni'aki*), as well as their duties (*fatongia*) and skills necessary to daily life (Morton 1996: 70ff; Evans 2001: 57).

Children acquire this social knowledge mainly in their interactions with kin, especially within the nuclear family and with other relatives who live in close proximity. While traditionally, the extended family (*kāinga*) was the central unit of social interaction, in modern daily life, the nuclear family – and eventually some additional *kāinga* members who reside within the same household (*'api*) or at least within the same village – has become the most important kin relation (Morton 1996: 122f). However, *kāinga* relationships are still of great importance, particularly at special occasions such as weddings and funerals (van der Grijp 1993: 135; Evans 2001; Völkel 2010). Already early socialisation is characterised by contact with various family members (including older siblings) who carry the infant with them while carrying out their daily tasks (called "proximal" socialisation model by Keller 2007; 2011). Consequently, the informal socialisation process takes place in various contexts, such as all kinds of work within the household, feasts, village meetings, church events, and special occasions within the *kāinga* or the play with other children. More formal instruction is given in family meetings, Sunday school, etc. (Morton 1996: 136ff, 147ff, 167f). While parents rely primarily on the family or the church for the instruction of traditional values and skills, formal education is regarded as means to access more prestigious and better paid white-collar jobs (Tupouniua 1977: 56ff).

Formal education of a European type has been introduced to Tonga by the early missionaries (Tupouniua 1977: 53). Today, the educational system is well established and formal education is highly valued. According to Tongan law, all children at the age of six to fourteen who are living within two miles of a government primary school or a similar institution must complete six years of primary education (Tongan Government 1967: Act 23, sections 52-53). In fact, the vast majority of children of that age (i.e. about 98%) are attending school (Tongan Government 2006), as even the outer islands provide primary education facilities. However, there is an unequal distribution of education facilities between urban and rural areas. Especially for secondary and higher education, children from the outer islands have to move to Nuku'alofa or at least to regional centres (Morton 1996: 39), and in rural areas, children mostly have no preschool education because of the lack of kindergartens. The latter fact had an impact on the recruitment of children at the age of three to six for our experimental study (cf. "Locations of the experiments"). Although preschool facilities are becoming more popular as a means to gain better education, most people cannot afford the fees.

The educational process in Tonga is characterised by different ways of teaching and learning. Preferred means of imparting knowledge are memorisation as well as direct advice and instruction. Practical skills and appropriate behaviour are mainly acquired through observation and imitation (Tupouniua 1977: 59; Morton 1996: 156ff). In school, classes are held for larger groups of students and individual interrogation or assistance is hardly common. Single students are mostly too shy to ask individual questions in case of missing comprehension and individual remarks are unusual either (own observation). In school as well as in informal contexts, special attention is usually given if a child has done something wrong or has misbehaved. Improper behaviour or missing knowledge are sanctioned. Children are frequently teased for incompetence and thus discouraged (Morton 1996: 231).

Discipline and corporal punishment have been introduced by the early missionaries together with their system of formal education. Today, corporal punishment in school is officially forbidden by law (Tupouniua 1977: 53f; Morton 1996: 178ff, 192). However, there is still a great pressure to perform well in school. The school fees are often a financial burden for the families, and mostly, they rely on remittances from relatives living overseas to cover these expenses (Morton 1996: 39). Consequently, children are expected to achieve good results. The fact that the

final results of each child are publicly announced on the local radio at the end of a school year surely intensifies the social pressure (own observations). Overall, discipline at school is strict and the student-teacher relationship is greatly hierarchical.

Corporal punishment (or at least its threat) is often still a common means within the family to discipline improper and disrespectful behaviour, especially lack of obedience towards people of high rank and status (Morton 1996: 187ff). At least within the village, it is generally difficult for children to escape social control. They are raised in a network of unequal social relationships (cf. "Social structure") and even when playing with other children, they are educated and controlled by relatives of higher status.

Social structure

Tonga is a highly stratified chiefly society with two hierarchical concepts according to which no two people are of equal rank and status: First, an absolute hierarchy (i.e. rank) on the societal level, and second, a relative hierarchy (i.e. *tu'al'eiki* status) on the family (*kāinga*) level.[1]

The absolute hierarchy of Tongan society consists of three fundamental ranking categories: *tu'i* ("paramount chief, sovereign"), *hou'eiki* ("chief") and *kakai* ("common people"). *Matāpule* ("chiefs' ceremonial attendants") can be regarded as a separate category because they fulfil a special office for their chief but they do not have chiefly rank themselves. Rank is ascribed by birth, and generally, the oldest male descendant inherits a chiefly title (Kaeppler 1971: 179). The chiefly titles were significantly restructured by the constitution of 1875. Only some chiefs were officially appointed as *nōpele* ("nobles") with hereditary titles and estate while other traditional chiefs lost their legal power (Bott 1981: 59ff). However, socially they are still respected and recognised as higher ranked within their villages (Aoyagi 1966: 143; Völkel 2010). Another important change of this time was the establishment of the Tu'i Kanokupolu (the lowest of three Tu'i titles) as a king (Kaeppler 1971: 180). Traditionally, the Tu'i Tonga was the highest ranked person in Tonga – as the closest descendant of the divine ancestors, he was ascribed superior *mana* ("spiritual power"). All the chiefly titles then derive their rank from genealogical proximity to the Tu'i lines (Bott 1981: 20-32). Higher rank is expressed and honoured by taboos, sitting order, language of respect, land tenure system, gift exchange processes, etc.

(Völkel 2010). In modern Tongan society, various non-traditional authorities, such as commoners in high positions within the church, government posts, the medical or the educational system, have achieved special status and respect. Such authorities are generally highly educated, i.e. education is regarded as an important condition to access highly respected positions (Bott 1981: 68ff; Morton 1996: 23f). *Pālangi* (Westerners, Europeans) are generally also treated with great respect in order to incorporate them into the stratified social system.

The relative hierarchy describes the status of a person in relation to other members of his/her kin group (*kāinga*). Everybody has kin of higher (*ʻeiki*) and of lower (*tuʻa*) status regardless of a person's societal rank. This *tuʻa-ʻeiki* dichotomy is mainly determined by gender and relative age (chronological or genealogical). The most important principles are: First, female siblings have higher status than male siblings. Second, older same-sex-siblings are superior to younger ones, and third, patrilateral kin have higher status than ego while matrilateral kin have lower status (Kaeppler 1971: 176; van der Grijp 1993: 164f). It results from these principles that the father's sister (*mehekitanga*), especially the oldest one, has the highest status while the mother's brother (*tuʻasina*) is extremely low in status. The *mehekitanga* is even ascribed a certain amount of supernatural power (*mana*). There are different ways of behaviour which are connected with these *tuʻa* and *ʻeiki* relationships among kin, such as demanding behaviour and freedom from restraint towards the mother's brother, and restraint and obedience towards the father's sister (Kaeppler 1971: 177; Douaire-Marsaudon 1996; Völkel 2010: 36ff). This becomes obvious in daily life as well as at special occasions such as funerals and weddings when *ʻeiki* relatives (especially the *mehekitanga*) are honoured in various ways, e.g. sitting positions, kind of clothing mats, gift exchange processes and their tasks and privileges (Völkel 2010). In contrast to these extremely unequal relationships, there is hardly a difference in status between same-sex siblings and cousins (*tokoua*), except for the aspect of seniority. Their relationship is very close and they share everything. Older same-sex siblings and cousins (*taʻokete*) raise and take care of younger ones (*tehina*) (Morton 1996: 130f).

These multi-dimensional hierarchical concepts are central to Tongan identity, and thus, they fundamentally shape child socialisation (Morton 1996: 22, 25). Children have to acquire knowledge about their social role (i.e. status and rank in relation to other members of the society) as well

as appropriate behaviour to this role. This is the central aspect of traditional Tongan education which takes place in daily life (Tupouniua 1977: 52; Morton 1996: 78ff, 122ff).

Because of the complexity of the hierarchical systems and its requirements (i.e. appropriate behaviour and expressions of respect), children acquire this knowledge step by step. In the first place, children are embedded in the social network of their kinship and their village. In order to interact within the social environment of the family, it is generally of primary importance to learn about the relative hierarchy. However, children are not expected to entirely understand the complex kinship system with its status inequalities until the end of primary school (Morton 1996: 124). For children of commoners, the comprehension of the entire absolute hierarchy is even of secondary importance. Within their village environment, they normally get in contact with very few people of higher rank (i.e. mostly only with the chief). However, there are a lot of other authorities who have to be met with respect by children, such as teachers, priests and older people.

Consequently, children have to acquire a relational mode of agency, respecting the social structure and maintaining social harmony in each context.

Locations of the experiments

The experiments were conducted at three locations (Tongatapu, ʻEua and Vavaʻu) that differ crucially in infrastructure, and consequently, daily life and education of children and their social environment.

The first location was the capital Nukuʻalofa on Tongatapu. There are several kindergartens in town which are run by different organisations and with different concepts (such as churches, government or private people with Montessori training) as well as numerous primary schools, including the prominent Tonga Side School (kindergarten, primary school and middle school teaching in English). Most of the prestigious secondary and higher education institutions are also on Tongatapu and particularly in Nukuʻalofa. In contrast to the primary schools which are predominantly government run, most high schools are operated by the different churches (Morton 1996: 38ff). The experiments were conducted with children from town and circumjacent villages at a kindergarten of the Free Wesleyan Church, the biggest Christian community in Tonga, and at Tonga Side School. The Wesleyan kindergarten was chosen be-

cause of its rather traditional Tongan values and representative characteristics: This preschool was mainly attended by children with so-called "middle class" background. Private kindergartens are mostly more expensive and considerably influenced by Western educational concepts (e.g. Montessori). Hence, a rather specific group attends this kind of kindergarten, questioning the broad validity of the results. Therefore, the Wesleyan preschool provided a better experimental setting. As the older children had already left for primary schools, Tonga Side School was chosen as the second location in Nuku'alofa to recruit children at the age of five to six. This special primary education institution is attended by children from all over Tongatapu (or even Tonga) who had to pass an admission exam in English language. In contrast to children who do not attend kindergarten or those who go to standard primary schools, both locations of the experiments are regarded as better educational facilities.

Illustration 2.1: Children of a Wesleyan kindergarten in Nuku'alofa

A second experimental series was conducted at 'Ohonua. With a population of 1626, it is the regional centre of 'Eua (Tongan Government 2006). 'Ohonua has running water, electricity, private landline tele-

phones, supermarkets, a local market, a small harbour with a ferry service to Nuku'alofa and a nearby airport with short domestic flights to Tongatapu. 'Eua has less educational facilities than the main island Tongatapu. However, apart from primary schools, 'Eua also provides preschool and secondary education institutions although some students move to Tongatapu mainly for secondary education at boarding colleges. Probands in 'Ohonua belonged to the Free Wesleyan Church kindergarten and the local primary school.

Lastly, the experiment was carried out on two outer islands of the Vava'u group: Ofu and Hunga. The former one has 128 and the latter one 242 inhabitants (Tongan Government 2006). Both islands are about three hours' distance by boat from Neiafu which is located on Uta Vava'u, the mainland of Vava'u. While there is a ferry service from Neiafu to Hunga, Ofu can only be reached by private boats. There is no running water, no electricity and hardly any shopping facilities available on these outer islands. Only Hunga has got one communal landline telephone. People on Hunga and Ofu live mainly of plantation and fishing for self-supply or they work on Uta Vava'u, mainly in Neiafu. Each of these two outer islands runs a governmental primary school but there are no preschool facilities. For secondary or higher education, children have to go to Neiafu. Either they travel over there on a daily basis, or they stay with relatives who live near school, or their families even set up temporary villages on Uta Vava'u. The absence of kindergartens made it necessary to recruit children for the experiments in a different way. On Ofu, the principal of the primary school asked the locals to bring all children between the age of three to six to participate in the study. None of these children was attending primary school yet. On Hunga, the experiments were conducted with five- to six-year-old children of the local primary school and younger ones who have not received any formal school education yet. Therefore, the latter ones were recruited by older students who informed other locals about this study.

Experimental design

Theoretical, practical and cultural considerations concerning the adaptation of the false belief tasks

Two experiments were chosen to investigate Tongan children's understanding of false belief: firstly, a change of location task based on

previous work of Callaghan et al. (2005), and secondly, a deceptive container task formerly conducted by Vinden (1996). The latter experiment also tested subject's ability to perform representational change. In line with former studies (Gopnik and Astington 1988), it was assumed that the ability to understand representational change is related to false belief understanding.

Both experiments are what Callaghan et al. (2005) name a "naturalistic task", meaning rather than telling participants a story, real life scenarios are acted out by real people. The clear advantage of such a naturalistic setting is the close resemblance to everyday life of the participants which keeps the risk of an artificial and unfamiliar situation to a minimum. This seemed of great importance as prior research in non-Western cultures suggested that unfamiliarity with experimental and individualised procedures may have caused irritation and nervousness in subjects, risking validity of findings being confounded (Vinden 1996 and 1999). Apart from that, previous studies have demonstrated that children from non-Western cultures show comparable performance to Western children when using these kinds of false belief tests (Avis and Harris 1991). Because of these reasons, the naturalistic false belief tasks based on Callaghan et al. (2005) and Vinden (1996) were the experiments of choice.

The selected tasks were adapted to the local conditions to ensure cultural appropriateness of the experiments. Participant observation and unstructured interviews, i.e. methods used in cultural anthropology, were utilised in the initial fieldwork to adjust experimental designs to local conditions (i.e. procedure and material). The material was purchased in Tonga to guarantee local availability and familiarity. Spending time with the kindergarten teachers and children provided ideas about suitable experimental paradigms. Pre-trials showed that one of the Tongan assistants shortened or alternated the experimental procedure. A relatively short paradigm would not only prevent invalidity of findings due to procedural errors but would also avoid impatience and boredom on the part of assistants and children. It was decided to conduct the false belief experiments by Callaghan et al. (2005) and Vinden (1996) because of their rather short duration and manageable experimental proceeding.

Both tests were conducted in Tongan language to avoid misunderstandings based on language difficulties. The translation of the experimental wording from English into Tongan was done by a native speaker who was not only a Tongan language instructor but also fluent in

English (cf. Appendix). To ensure as much accuracy as possible, two other bilingual locals were additionally consulted with the translation. Required criteria for the Tongan version were naturally sounding terms and phrases, culturally adequate wording, and of course, grammatically correct sentences.

a. Change of location task:
The false belief task by Callaghan et al. (2005) involves an object's change of location. Slight changes were applied to the material: Two[2] identical cardboard boxes were chosen instead of bowls because of practical reasons. The boxes were selected because they were plain and therefore, not distracting. In contrast, an eye-catching object, more specifically, a pink coloured toy was used as this was likely to catch the attention of the participating child. The toy was tested on children before utilising it in the experiment to ensure its attractiveness to the participants.

Furthermore, it was relevant to know to which extent the Tongan society accepts or utilises the concept of "deception". As the children had to relocate the toy secretly, they were asked to deceive the experimenter, even though in a rather mild form. It was discussed with some Tongan assistants whether such misleading or deceiving (i.e. being *kākā*) represents a gross contradiction to appropriate and socially competent behaviour (i.e. being *poto*) (cf. "Childhood and socialisation"). If so, children might avoid deceiving the experimenter in order to proof their social competence. Finally, it was concluded that this moderate form of tricking without holding bad intentions would not contradict common local behaviour. However, the decision was made not to explicitly mention the notion to trick someone, and thus, the phrase "Do you want to play a game on person X?" was not added to the experimental design.

Like Callaghan et al. (2005), open questions were used to prevent children answering by chance only. The chosen false belief question inquired about the misled person's action, not thoughts, possibly making it easier for children to predict the other individual's behaviour due to less executive task demands (Siegal and Beattie 1991; Yazdi et al. 2006). Children were asked to express their expectation by pointing. Not having to verbalise one's choice appeared easier for the children and minimised issues of translation.

b. Deceptive container task:
The second test, the deceptive container task, is based on cross-cultural research carried out by Vinden (1996) examining a child's ability of representational change and false belief. The representational change question according to Gopnik and Astington (1988) was added to the experimental design to see if Tongan children differentiate between their own prior false belief and their final knowledge. The false belief item aimed at testing a subject's capability to attribute false belief to other people.

It was important to find an experimental object that was likely to evoke a particular belief in a child: The object had to be familiar to the child and had to be associated with only a very specific content. The prototypical version of the deceptive container task includes a "Smarties" box which is refilled with pencils. However, this sort of candy is not easily available throughout Tonga. By means of pre-trials and unstructured interviews with locals, a common Tongan cooking pot was chosen as the experimental object because it is familiar and well known to Tongan children.[3] They are likely to know the purpose of pots as it represents an everyday cooking item. Before the actual start of the experiment, the pot was filled with books in the absence of the participant.

Illustration 2.2: Experimental material used in the change of location task

Some changes were applied to this experimental design, too. An induced belief question was introduced to ensure that the expected false belief was indeed generated in the children. Additionally, the representational change and false belief items were shortened and simplified. Finally, three versions of the false belief question were given to all participants to find out if social stratification has an impact on the given answers. The idea was that people of high rank and status who are ascribed high social prestige and supernatural power (such as the *tu'i* and the *mehekitanga*) are treated with special respect and are considered to be omniscient in the false belief task while people of nearly equal power and status (such as the *tokoua*) are not (cf. "Social structure"). More precisely, it was considered whether individuals of higher social rank/status were less likely to be ascribed a false belief than persons of similar rank/status due to their socially ascribed power. The actual false belief query asked about the mental state of the child's *tokoua*. The additional formats inquired about the belief of the *mehekitanga* and the *tu'i*. Incorporating these three different forms of social status/rank into the experimental design was an intriguing undertaking.

By conducting two false belief tasks which differ in their experimental paradigm, a relatively comprehensive set of data was hoped for. Besides, results of both tests could clarify if one of them is more appropriate or feasible for cross-cultural research in Tonga than the other.

Procedure

Both experiments were conducted in Tongan language, which was spoken mainly by the Tongan assistant. The order of the games was randomised to avoid serial effects. The majority of the conducted experiments were videotaped to ensure reliability, validity and objectivity.[4] Sometimes a lack of electricity would not allow the constant use of a camera. All videotapes were checked for correct experimental procedure. Additionally, the recordings were reviewed by a local to assure accurate Tongan wording. In one case, namely 'Eua's kindergarten, the video analysis revealed significant changes to the experimental wording used in the deceptive container task. The affected data was excluded from the final statistical analysis. In all other cases, the wording and procedure was determined to be correct.

Open questions were used in the trials instead of forced choice items to prevent children from answering by chance only. Answers were scored

as either correct or incorrect, respectively as existing or missing understanding of false belief.

In a pre-experimental period, the experimenter spent time with the subjects so that both parties could get familiar with each other. This included not only observation, but free play with the children. Surprisingly, most of the participants were not shy but very welcoming and naturally curious. Hardly any of them seemed scared or cried when getting introduced. It is worth to mention, that Tongans usually treat white foreigners with respect and meet them with special interest and great enthusiasm (cf. "Social structure").

Illustration 2.3: Children during the warm-up period preceding the experiments

a. Experimental procedure of the change of location task:
Two identical cardboard boxes were placed in front of the child. The experimenter then initiated the game by showing a toy to the participant, followed by the Tongan assistant stating that "This is Alex's favourite toy!" Subsequently, the assistant said that the experimenter will put the toy in one of the boxes before leaving the room for a short while: "She is going to put her toy in here while she goes outside." To ensure that the

child saw where the object was placed, the assistant continued by saying: "See, it is right here! We are going to play with it when she gets back!" While doing so, the assistant pointed towards the box containing the toy. An additional control item, "Where is the toy", was also asked to make sure that subjects knew the location of the toy. The subsequent test question was only asked once the child had correctly identified where the toy was placed. The experimenter then left the room. After this, the Tongan teacher prompted the child to take the toy and to put it into the other box by requesting: "Take the toy and hide it in the other box!" Finally, the subject was asked the actual false belief question: "Where is Alex going to look for her toy when she comes back?" After a pre-assigned time frame of three minutes, the experimenter returned, stating that she was going to look for her toy. Initially, the experimenter looked at the box where she had left it. As the carton box was obviously empty, the experimenter pretended to be surprised about the missing content and asked the child where the toy had gone.

Children were scored as passed when they pointed to the box in which the experimenter had initially placed the object. In contrast, a subject declaring that the experimenter will check the box in which the child had secretly placed the toy, was given an incorrect.

b. Experimental procedure of the deceptive container task:
Before the actual start of the experiment, an empty cooking pot was filled with books in the absence of the child. The experimenter then put the pot in front of the child while the assistant initiated the experiment by asking "What do you think is inside?" to ensure that the expected false belief was indeed generated in the children. The answer of the child was then awaited. The question was repeated if the subject took longer to answer than expected. After responding to the first question, the subject was prompted to open the pot. Once the pot was opened, the child was asked the reality question: "What do you see inside?" Once again, assistant and experimenter waited for the participant to answer and repeated the question if required. The child was then requested to close the pot and to respond to the representational change question: "Before you opened it, what did you think was inside?" Again, the answer was awaited and when given, the final false belief question was asked: "Your *tokoua* has not seen what is inside. What do you think your *tokoua* thinks is inside?" Additional false belief questions were added to investigate if social status/rank has an impact on the upcoming answer: "Your *mehekitanga*

has not seen what is inside. What do you think she thinks is inside?" Also, "The *tu'i* has not seen what is inside. What do you think he thinks is inside?" If the child did not seem to understand that the *tokoua* (respectively *mehekitanga* or *tu'i*) was not present in the room, hence that they could not have seen the actual content of the pot, the following prompts were given: "Is your *tokoua (mehekitanga* or *tu'i*) in this room? Has he/she seen what is inside? What does he/she think is inside?" By doing so, misunderstandings were kept to a minimum.

Children who stated that another person expects books as the actual content of the pot were scored as failing the false belief task. On the other hand, participants saying that food would represent the other person's assumption were given a pass. For the representational change test, a subject who claimed to have thought books were inside the pot was assigned an incorrect score. Participants asserting an initial belief of food were assigned a correct score.

Participants

Children were recruited mainly from formal educational contexts such as kindergartens and primary schools. By doing so, a high number of participants at the age from three to six with similar educational background could be attained quite easily.

A total of 105 children participated in the study. The final set of data contained 74 participants who completed the deceptive container task and 100 subjects who completed the change of location task. 27 children dropped out with respect to the deceptive container task due to inaccurate experimental wording or not giving an answer even after several encouragements. One child did not participate in the change of location task for practical reasons.

The total sample of 101 children is composed as follows: 61 children were tested in Nuku'alofa (35 at the Wesleyan Church kindergarten and 26 at the Tongan Side School). 18 participants were from 'Eua (ten at the kindergarten in 'Ohonua and eight at the governmental primary school). Five subjects were from Ofu and 17 children from Hunga (twelve from the governmental primary school and five without prior preschool education) (cf. "Locations of the experiment").

56 of the participants were male and 45 subjects were female. The age of the children ranged from three to six years. Children were considered three years old if they were between their third and fourth birthdays,

four years old if they were between their fourth and fifth birthdays and so on. More precisely, there were 16 three-year-old, 37 four-year-old, 22 five-year-old and 26 six-year-old subjects. The mean age was 4.58 years. The age of the children was known to the teachers in most cases. School application forms which were formerly filled out by the parents were additionally checked for age verification. In cases where no official documentation of the child's age was available, close family members were consulted to ensure the accuracy of the given information.

Children were assigned to one of two categories according to their age: the three- to four-year-old subjects formed one group, and the five- to six-year-old subjects another one. Comparison of performance with regard to age was made according to these two groups (cf. "Results").

Assistants

At all locations, the experiments were conducted by the experimenter plus a Tongan questioner who was usually assigned by the principal of the respective school. Eligibility criteria were good knowledge of English as well as reliability and commitment to the study. In most cases, it was a local kindergarten or school teacher who was familiar to the participants. Only in one case, namely in Ofu, the studies were conducted by a Tongan female who was not a professional teacher, yet was known to the children. All in all, assistants and principals of the participating schools were very supportive and eager to conduct the study.

It was decided to work with the respective local assistant for several reasons: First of all, to prevent misunderstandings based on language difficulties as the experiments were conducted in Tongan. Children at the age of three to six often have only rudimentary English knowledge. Having a local speaking the experimental wording seemed like the best idea because of the lack of sufficient knowledge regarding the Tongan language on the part of the white experimenter (*pālangi*). A second reason was to maintain as much familiarity as possible. However, the advantage of familiarity of the local assistants to the subjects is accompanied by the inherent disadvantage that this might have put the participants under additional pressure to perform well and to avoid embarrassment. Anyhow, a Tongan assistant was the best option because the white experimenter would have provoked similar effects. *Pālangi* generally draw attention, and consequently, the subjects were likely to impress them, too (cf. "Ethnographic setting").

With respect to the change of location task, tricking the assistant could have strained the student-teacher relationship. That is why it was decided to deceive the white experimenter and not the assistant.

Great care was taken that the Tongan assistant was fully informed about the experimental procedures. Further, strong emphasis was placed on the necessity of adhering to the given Tongan wording and the experimental procedures. A pre-trial was carried out before the actual start of the experiment in order to familiarise the assistant with procedures and regulations. Generally, the role of the white experimenter was to coordinate the experimental procedure: During the initial pre-trial at a preschool in Nuku'alofa, it became apparent that the Tongan assistant thought all children regardless of age have to know the right answer. This resulted in giving numerous hints and encouraging the participants to do well in order to please or impress the experimenter. Once this source of error was discovered, the assistant was once again informed about the age related development of this experiment. The affected participants were then excluded from the final data analysis. In addition, the Tongan assistant at the kindergarten in 'Ohonua changed the wording of the deceptive container task in such way that the gained data had to be excluded from the final statistical analysis. Both incidents can be seen in the light of wanting to please or impress the *pālangi* experimenter as they as well as educational authorities enjoy great respect and special interest in Tonga. Thus, not only the children but also the assistants reacted on the mere presence of the *pālangi* foreigner. However, being aware of this potential source of bias, it was finally regarded as the best option though to assign the local with the experimental wording and the white experimenter with the guidance through the procedures and the role of the tricked one (regarding the change of location task).

Experimental setting

In the majority of cases, a separated room situated within the school or kindergarten was chosen as the experimental location. It was sometimes challenging to maintain the necessary quiet as other students and adults were naturally curious about the proceeding experiments. Only at the kindergarten of 'Eua, the games had to be performed outside: The tests were carried out in the back of the preschool because no separate room was available. The most secluded place of the school backyard was chosen to maintain the required privacy.

The experiment was carried out with one child after the other. Such an individualised setting is not familiar to Tongan children though as students are usually taught in larger groups and children spent most of their time with peers (cf. "Childhood and socialisation"). However, the experimental procedure required to test only one child at a time.

Results

a. Results of the change of location task:
In general, participants gave the impression that they enjoyed this game more than the deceptive container task as they seemed very relaxed. Laughing or giggling while hiding the toy suggested a rather playful perception of the game. Interestingly, most subjects did not hesitate in trying to trick the experimenter by secretly relocating the object.

With reference to the specific items, the results are as follows. All 100 children either pointed to or named the right box once asked the control question: "Where is the toy?" Hence, all of them noticed where the object had been placed by the experimenter in the first place.

Cross tables were used to test the null hypothesis that there is no association between the variables "age group" (cf. "Participants") and "performance on false belief question" ("Where is Alex going to look for her toy when she comes back?"). The results are as follows: 25 (47.2%) of the three- to four-year-old children passed the false belief test compared to 35 (74.5%) of the five- to six-year-old children ($\chi^2 = 7.735$, $df = 1$, $p < .005$). These findings suggest that subjects do differ in their false belief understanding, that is, the five- to six-year-old participants perform significantly better on this item than the three- to four-year-old ones. Figure 2.1 presents the performance on this false belief question of the three- to four- and the five- to six-year-old subjects. Within age groups, binomial tests were conducted with a probability parameter of .50 to see if participants answered by chance only. With regard to the five- to six-year-old children, the observed frequency of pass versus fail is significantly different from the theoretically expected frequency of .50 (binomial test, $p < .001$). Hence, it is unlikely that the observed frequency is due to mere coincidence. This is not the case for the three- to four-year-old participants though (binomial test, $p < .784$). The observed frequency does not significantly differ from the theoretically expected of .50.

A binary logistic regression analysis with "age group" as the independent variable and "performance on the false belief question" as

the dependent variable revealed that age indeed served as a significant predictor of performance (*Wald* = 7.469, *df* = 1, $p < .006$). The Omnibus Test of the model coefficients was also significant ($\chi^2 = 7.897$, *df* = 1, $p < .005$) and the model including "age group" as a predictor accounted for 10.3% of the variance ($R^2 = .103$).

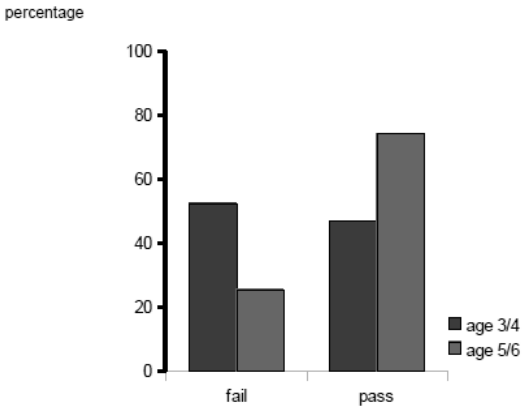


Figure 2.1: Performance on the false belief question of the three- to four- and the five- to six-year-old participants (change of location task)

b. Results of the deceptive container task:
All of the above non-parametric procedures were also applied to the set of data from the deceptive container task. Additionally, a cross table containing the variables "representational change" and "false belief" – with associated Phi correlation coefficients – was used to check for significant interrelation.

Regarding the first question ("What do you think is inside?"), all participants correctly identified the object as a pot and assumed some sort of food being inside. However, many children needed repeated encouragement to name the object and its contents. Participants often seemed shy and somewhat confused by the question. Repeating the question and asking what their mother usually puts into a pot, helped in those cases. With respect to the second question, the so-called reality question ("What do you see inside?"), all 74 children correctly identified books as the actual content of the pot. Hence, all participants were initially misled (as expected) and changed their beliefs according to reality once the pot was opened.

Concerning the third item, the representational change question ("Before you opened it, what did you think was inside?"), the results are as follows: 16 (45.7%) of the three- to four-year-old subjects passed compared to 15 (38.5%) of the five- to six-year-old ones ($\chi^2 = .399$, $df = 1$, $p < .528$) who gave correct answers. Thus, the age groups do not differ significantly from each other. Figure 2.2 presents the performance of the three to four and the five- to six-year-old participants on the representational change task.

Within age groups, binomial tests were conducted with a probability parameter of .50 to see if participants answered merely by chance. In both cases, that is with regard to the three- to four-year-old (binomial test, $p < .736$) and the five- to six-year-old children (binomial test, $p < .200$), the observed frequency of pass versus fail is not significantly different from the theoretically expected frequency of .50. A logistic regression with "age group" as the independent variable did not predict performance on the representational change question (*Wald* = .398, $df = 1$, $p < .528$). The Omnibus Test of the model coefficients was also not significant ($\chi^2 = .399$, $df = 1$, $p < .528$). Finally, the model with age as a predictor explained hardly any variance ($R^2 = .007$).

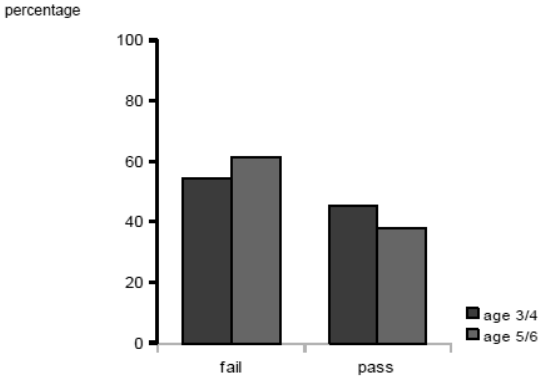


Figure 2.2: Performance on the representational change question of the three- to four- and the five- to six-year-old participants (deceptive container task)

The results of false belief question I ("Your *tokoua* has not seen what is inside. What do you think your *tokoua* thinks is inside?") revealed the following: Eleven (31.4%) of the three- to four-year-old and twelve

(30.8%) of the five- to six-year-old children passed the false belief test (χ^2 = .004, *df* = 1, p < .951). Once again, the age groups do not differ significantly from each other. Figure 2.3 exemplifies the performance of the three- to four- and the five- to six-year-old participants on the false belief question I.

Within age groups, binomial tests were conducted with a probability parameter of .50 to see if participants answered simply by chance. The observed frequency of pass versus fail is significantly different from the theoretically expected frequency of .50 for the three to four (binomial test, p < .041) and the five- to six-year-old subjects (binomial test, p < .024). A binary logistic regression analysis with "performance on the false belief question" as the dependent variable and "age group" as the independent variable, showed that age does not represent a suitable predictor of performance (*Wald* = .004, *df* = 1, p < .951). The Omnibus Test of the model coefficients was not significant (χ^2 = .004, *df* = 1, p < .951). Furthermore, no variance was explained by the model including "age" as a predictor (R^2 = .000).

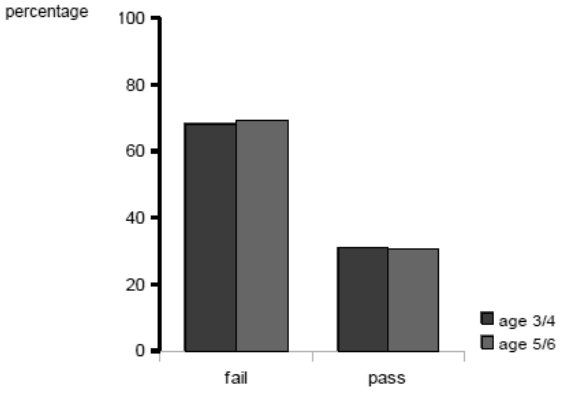


Figure 2.3: Performance on the false belief question I of the three- to four- and five- to six-year-old participants (deceptive container task)

The other false belief questions draw a similar picture: In reference to the false belief question II ("Your *mehekitanga* has not seen what is inside. What do you think she thinks is inside?"), the results are as follows: Eleven (31.4%) of the three- to four-year-old and 14 (35.9%) of the five- to six-year-old children passed (χ^2 = .165, *df* = 1, p < .685). Hence, no

significant difference between the groups existed. With regard to the three- to four-year-old children, the observed frequency of pass versus fail is significantly different from the theoretically expected frequency of .50 (binomial test, $p < .041$). This is not the case however for the five- to six-year-old participants (binomial test, $p < .108$). The outcome of the logistic regression for the second false belief item resembled the results of the first belief question (*Wald* = .164, $df = 1$, $p < .685$). With an Omnibus Test of $\chi^2 = .165$, $df = 1$, $p < .685$) and an overall explanation of variance of 0.3% ($R^2 = .003$), age did not predict performance of the Tongan children at all.

The same conclusion can be applied to the third false belief question as well ("The *tu'i* has not seen what is inside. What do you think he thinks is inside?"): Eleven (31.4%) of the three- to four-year-old and 14 (35.9%) of the five- to six-year-old participants passed ($\chi^2 = .165$, $df = 1$, $p < .685$). The results indicate no inter-group variation. In both cases, that is with regard to the three- to four-old (binomial test, $p < .332$) and the five- to six-year-old children (binomial test, $p < .073$), the observed frequency of pass versus fail is not significantly different from the theoretically expected frequency of .50. A logistic regression further revealed that age cannot be seen as a predictor (*Wald* = .006, $df = 1$, $p < .938$). An Omnibus Test with $\chi^2 = .006$ ($df = 1$, $p < .938$) and a Nagelgerkes Square of $R^2 = .000$ further suggested that age does not contribute to the explanation of performance at all.

Regarding the relationship between representational change and false belief, the following results become evident: Both test items correlate significantly with each other ($\varphi = .495$, $p < .000$), suggesting a strong connection between performance on these two test questions. 38 (88.4%) of the children who failed the representational change question did so also on the false belief item. Furthermore, 18 (58.1%) of the participants who succeeded on representational change also passed the false belief item ($\chi^2 = 18.134$, $df = 1$, $p < .000$). According to these results, the inability to mentally represent one's own change of belief is related to the missing ability to understand someone else's false belief. However, the ability to perform a representational change does not necessarily imply the understanding of someone else's false belief.[5]

A significant correlation between both experiments ($\varphi = .241$, $p < .040$) indicates a relationship between the performances on each of the tasks. A high percentage of the children who fail one of the false belief tasks, also show incorrect performance on the other false belief test

(84.0%). However, passing one of the false belief questions does not necessarily imply success on the other (39.6%).

Ethnopsychological discussion

The results of the change of location task clearly support the notion of an age related improvement of performance. Whereas the majority of three- to four-year-old children fail the task,[6] the five- to six-year-old subjects give predominantly correct answers to the false belief question. The significant increase of right answers with age is consistent with prior research of developmental psychology using Western samples (Wellman et al. 2001) and supports the notion of a universal developmental pattern of false belief understanding. The findings also go along with the notion of an underlying conceptual change of theory formation between the age of three to six.

All in all, the change of location task served as an appropriate experimental design to investigate false belief understanding in Tongan children. Even the initial consideration that being *kākā* ("cunning, to cheat, tricky") could be regarded as socially incompetent behaviour, and as a consequence, children would avoid it, did not turn out (cf. "Theoretical, practical and cultural considerations concerning the adaptation of the false belief tasks"). Instead, most of the children laughed or giggled while secretly relocating the toy, and interestingly, the great majority of them did not hesitate to mislead the experimenter. The situation was relaxed, informal and natural.

A different picture can be drawn from the performances on the deceptive container task. The outcome of the representational change question implies that the three- to four- and five- to six-year-old children do not differ in this respect. There is no evidence of an age related improvement, but the general impression is given that Tongan children have not achieved an understanding of representational change by at the age of six. These findings are not in accordance with prior research, which observed an increase of right answers by the age of five (Gopnik and Astington 1988; Wellman et al. 2001). The remaining results of the deceptive container task suggest further that Tongan children have not gained an understanding of false belief by the age of six yet. Participants predominantly fail this test item regardless of age. This outcome is not consistent with previous studies demonstrating an overall correct perform-

ance on false belief tests with five years of age either (Gopnik and Astington 1988; Wellman et al. 2001).

To sum up, while the results of the deceptive container task could be interpreted in the light of missing false belief understanding, the outcome of the change of location task suggests the opposite. As both experiments follow the same objective, the question arises: Does the deceptive container task actually represent a suitable tool to investigate false belief in Tongan children?

Considerations suggesting cultural inappropriateness of the deceptive container task concern the reaction of the children to the experimental procedure:

The vast majority of the participants seemed tense and somewhat shy during the deceptive container task. In most cases, subjects appeared somewhat confused by the prompted questions and needed much encouragement as well as additional hints, such as "What is this?" and "What does your mum usually put into a pot?" Telling children that they have nothing to fear usually helped in these cases. In comparison, participants varied in their reaction towards the two different experimental proceedings: While the children participated actively and with great interest in the change of location task, the response of the participants to the deceptive container task was generally rather reluctant and reserved. Moreover, the overall tone of the change of location task was very relaxed and playful; as opposed to the deceptive container task which appears similar to an interrogation: The subjects were asked to sit still while listening to the teacher and speak out only when asked questions. Such regulations appeared to create a rather stiff and uneasy situation. The change of location experiment did not require the children to follow such strict guidelines: The child was not demanded to sit still (as they were physically active in hiding the toy), did not have to follow long verbal instructions and did not need to respond verbally. Additionally, children were told that two games would be played with them beforehand. However, the nature of the deceptive container task resembled an inquiry more than a game for children. Thus, participants might have felt confused and tricked about the purpose of the game. The feeling of being deceived may have been reinforced by the fact that the subjects were initially mislead about the content of the pot. Therefore, the incorrect

response to the experimental questions could stem from caution rather than pure ignorance.

In the light of these considerations, the question comes up if the lack of correct answers concerning the deceptive container task is indeed an indication of missing representational change and false belief understanding in Tongan children? According to McCormick (1995) who has done similar research in Papua New Guinea and Peru, the incorrect performance on representational change testing might not be a mere lack of comprehension but a coping strategy: She argues that participants may simply realise that they have been tricked which is accompanied by feelings of shame and the fear of looking stupid. Therefore, they pretend to know what it was. The supposedly wrong answer might rather be an attempt to prevent being laughed at, to fit in and to fulfil expectations.

Consequently, the incorrect answers of the Tongan children to the false belief question may stem from pressure to perform well. This assumption appears fairly reasonable when taking a closer look at the everyday life of Tongan children: Being *poto* ("smart, socially competent") is very much desired and valued and pressure to perform well at school is high. Furthermore, discipline at school is strict and the student-teacher relationship is greatly hierarchical (cf. "Childhood and socialisation").

Subjects may also have simply tried to impress or please the experimenter as *pālangi* (Westerners, Europeans) generally draw attention and are fairly respected (cf. "Social structure"). The fact that the assistant and the *pālangi* awaited the child's answer, might have reinforced the feeling of having to perform well which in turn puts children under additional stress.

In this regard, it is important to keep in mind that individual interrogation is not common in Tongan schools (cf. "Childhood and socialisation"). Hence, the child might have been confused about the purpose of the encounter. To be with just a teacher and a *pālangi* while being asked questions must have felt awkward and stressful to the subjects. Altogether, the unfamiliarity with individualised experimental settings together with the demand to sit still and to listen carefully may have been a source of bias interfering with the children's ability to understand false belief.

Moreover, the experimental procedure of the deceptive container task demands the subject to deliberate on the given questions. Tongan teaching methods though are in particular memorisation and learning by means of imitation (cf. "Childhood and socialisation"). Thus, the used

false belief question, which requires autonomous reasoning might have been too unusual for the children. Apart from that, Tongans tend to give answers that the interviewer/experimenter is likely to expect instead of explicitly admitting that they do not know the answer (own observation). The child could have felt overburdened by the experimental setting as well as the procedure and may have tried to solve the problem by saying anything. As "books" represented the actual content of the pot, subjects might have thought that it would be the best option to state "books" as the answer to the false belief question; in particular after having been tricked themselves before.

All in all, a multitude of reasons might have caused nervousness, confusion and insecurity in the Tongan children. This, in turn, is likely to interfere with children's knowledge about representational change and false belief. As the characteristics of the change of location task are less demanding and exceptional to the participants for the above-mentioned reasons, pressure to perform well may have played a greater role in the deceptive container task. However, these arguments remain speculative until further research addresses them. Prospective studies need to consider this matter by keeping the risk of such social desirability to a minimum.

Considerations concerning the format of the false belief question:

In contrast to the change of location task, the deceptive container task relies cardinally on language. The participating child must not only follow the instructions of the assistant but must also give answers themselves. Compared to the other experiment, the demands of language comprehension and particularly production are much higher. The change of location task requires hardly any talking but mere pointing and the sentences used are less complex. Especially, the false belief item of the deceptive container task ("Your *tokoua* has not seen what is inside. What do you think your *tokoua* thinks is inside?") with its double emphasis on "think" might have been too complicated and confusing to the children. Prior research has shown that performance of children improves when utilising less verbally complex experimental designs (Yazdi et al. 2006).

Furthermore, it was suggested that participants do better on false belief questions inquiring about someone else's behaviour instead of someone else's mental states (Vinden 1999). However, empirical evidence about the latter matter is rather heterogeneous as some previous

comparisons resulted in no significant differences in false belief understanding at all (Wellman et al. 2001). The current findings only facilitate the debate about this matter.

The false belief question inquiring about another person's thoughts might be somewhat problematic for another reason. Generally speaking, cultures differ in their degree of what is known as "mental state talk". This term refers to public discourse of mental states, such as feelings and thoughts (Symons et al. 2005). Conversation with mental state references is common practice in Western countries but not so much in other cultures as stated by Lu et al. (2008). It is argued that "Euro-American mothers and children frequently refer to the child's feelings, preferences, and opinions and discuss the causes of such states", while in other cultures, "mothers and children often focus on shared activities and the role of significant others in the past events" (Lu et al. 2008: 1727). With respect to this cross-cultural diversity, Tongans behave like people of other non-Western cultures: Mental state talk, i.e. publicly speaking about a person's individual feelings or thoughts, is not common.

This may explain the difficulties of Tongan children with the deceptive container task in which they were asked to verbalise mental states of others, in contrast to the rather unproblematic non-verbal (i.e. pointing) answer regarding someone else's behaviour in the change of location task.

This conversational behaviour concerning mental states correlates with the prevailing concept of person and the concomitant goal of socialisation. In contrast to Western societies in which the individual is the "center of awareness, emotion, judgement, and action" and the society becomes subordinated to the individual's psychological autonomy (i.e. an egocentric concept), the Tongan concept is clearly more sociocentric (Geertz 1983: 59). This means that the individual is primarily regarded as embedded in their social environment (Shweder and Bourne 1984; Keller 2011). In Tonga, in fact, the focus is on the individual's respective role relating to their social position in the network of hierarchical relationships (cf. "Social structure"). Morton (1996: 216) remarks that "a person's emotional life is inextricably bound up with others" and that there is "a cultural emphasis on learning emotional restraint and learning to read contexts in order to act appropriately with others". This interpersonal nature of emotion is prevailing throughout Polynesia. In Tonga (Bender 2008; Bender et al. 2007) as well as in Samoa (Ochs 1988), mind is regarded as private, secrete and unknowable, and therefore, not

relevant for interpersonal relationships.[7] Lillard (1998:13) calls this "privacy of minds", a feature of cultures that belief mental states to exist, but simply do not make them topic of conversation. What counts in such cultures, is a person's actual behaviour and the impact it has on other members of the society (i.e. the focus is on shared activity). In Western countries instead, the expression of feelings and thoughts is regarded as essential to self-realisation and inner motives constitute crucial components of human action (Ochs 1988).

Cultures also differ in the extent to which they accommodate egocentric behaviour in children, and their expectation of the age at which children should display social skills (Ochs 1988). The cultural context of Polynesian children generally "encourages sensitivity to and enactment of verbal and nonverbal behaviours associated with particular statuses and relationships and settings" (Ochs 1988: 71). In Samoa, children are far more often exposed to and immersed in multiparty interactions in which individuals display various social identities depending on whoever is present (Ochs 1988). Similarly, Tongan children are brought up with the notion that people act according to their social position in a particular context. Consequently, learning appropriate behaviour vis-à-vis others is an important requirement to socialisation from an early age on (cf. "Childhood and socialisation" and „Social structure"). While the primary goal of ("proximal") socialisation is thus relational adaptation, that means to become a competent member of the social group, ("distal") socialisation in Western societies, in contrast, aims at individual psychological autonomy, including inner reflection and expression of own feelings, thoughts and ideas (Keller 2011). It results that mental state talk and empathy are more essential to Western culture while Tongan children are less exposed to these concepts.

Because of the above-mentioned characteristics of Tongan society, it seems reasonable that assumptions about another person's behaviour are likely to be based on social status rather than on attribution of mental states. By way of contrast, the major motivator of action in Western cultures is individual desire: "Contemplating others' insides could be especially important to understanding actions in such cultures, and the 'need to explain' by contemplating others mental states could be higher than it is in cultures where social norms are more dictative of behavior" (Lillard 1998: 6). However, the influence of thoughts and emotions on human action is less distinct in Tonga where individual mental states are

not seen as one of the major determining factors of behaviour (Bender 2008).

With reference to the thought aspect of the false belief question, it may have been awkward for the subjects to be asked about someone else's thoughts. Previous studies demonstrated that the use of mental state talk is related to children's understanding of desires and beliefs of others (Hughes and Dunn 1998; Symons et al. 2005; Taumoepeau and Ruffman 2006). With respect to Tonga, it could be argued that the lesser extent of mental state talk may account for the overall difficulties on the deceptive container task as this test relies cardinally on the use of mentalist verbs. Because Tongan children are less exposed to conversations with mental state referencing, they might struggle with this highly mentalist false belief test. In this context, it is worth mentioning that even the translator of the experimental questions from English into Tongan initially hesitated only with the translation of the false belief question because of its double emphasis on "think" (cf. Appendix).

However, one study about Chinese preschool children showed that the frequent use of social referencing in parent-child conversations correlated positively with false belief task performance (Lu et al. 2008). A common feature of socio-centric cultures is that they make greater use of social referencing than of mental state talk, and this could facilitate the development of mind via an alternative pathway (Lu et al. 2008). Future research should aim at investigating the potential impact of mental state talk and social referencing on belief understanding.

The three versions of the deceptive container task, which were designed to test the impact of social stratification on false belief performance, did not show the expected results either. The idea was that people of higher social rank or status (i.e. the *mehekitanga* and the *tu'i*) are less likely to be ascribed a false belief than persons of similar rank or status (i.e. the *tokoua*). This is based on previous considerations: The *mehekitanga* as well as the *tu'i* are treated with special respect and are considered to be more knowledgeable due to their high *mana* (i.e. supernatural power). Consequently, the children may have concluded that in contrast to the *tokoua*, the *mehekitanga* and the *tu'i* simply know the content of the pot without looking inside. To state that people of high rank or status would not have the knowledge of its content may have appeared disrespectful and ignorant vis-à-vis their social position.

In contrast to the initial considerations, the outcome of the experiment revealed no difference between the three versions of the false belief

question. The *mehekitanga* and the *tu'i* were generally treated in the same way as the *tokoua*. The results suggest that despite the significant role of social stratification in everyday Tongan life, it does not predict performance on false belief items.

A probable explanation for these results provides the age at which false belief understanding as well as knowledge about the complex hierarchical social structure are supposed to be acquired. Until the end of primary school, children are generally not expected to entirely understand the complexity of social stratification (cf. "Social structure"). Consequently, the participants at the age of three to six were still too young to take the hierarchical relationships into consideration when answering the false belief questions.

To sum up, the results of the change of location task clearly demonstrate an age related improvement of false belief understanding in Tongan children by the age of five, respectively, six. Thus, the outcomes provide evidence for a universal pattern of theory of mind development. On the other hand, the outcome of the deceptive container test reveals no notable difference between children of three to six years at all. This finding proposes diversity of false belief understanding across cultures. Alternative considerations (which take cultural attributes into account) suggest that the difficulties of Tongan children may not be due to a mere lack of comprehension but aspects of socialisation and enculturation.

The study at hand demonstrates the need to use false belief experiments only with great caution in other cultural settings. A belief test might be an adequate tool in one culture, but not so much in another. Berry et al. (2002) refer to this as a matter of "equivalence". Generally speaking, one cannot assume that a concept or a method holds the same meaning across cultures as other culturally specific aspects might interfere with a subject's performance. Consequently, competency might be denied, mistaken or misinterpreted. If looking merely at the outcome of the experiment, that is fail or pass, it is easy to overlook other important aspects. Paying regard to facets beyond numeric results such as social structure, childhood, socialisation and other cultural aspects, contributes enormously to the cross-cultural investigation of theory of mind understanding.

In this regard, the presented findings also underline the necessity to adapt experimental material as well as procedure of false belief tasks much more closely to the culture of interest. Appropriate translation and suitable material are necessary, but not sufficient criteria for cross-cul-

tural research. According to Berry (1969), researchers shall start with adapting experiments with respect to language and material. However, they must then scrutinise theoretical concepts and methods for cultural appropriateness to prevent the ethnocentric bias of imposed ethics (Berry et al. 2002). Furthermore, the results have to be evaluated and interpreted against the culture-specific background. Anyhow, at the same time it is important to keep in mind that culturally specific alterations of experimental designs bear the challenge of maintaining intercultural comparability of gained research outcomes.

All in all, it became apparent that cross-cultural research dealing with theory of mind development in children can benefit largely from the expertise of cultural anthropology. Its vast knowledge about human behaviour within particular cultural settings represents a rich source of information when designing and evaluating studies.

Appendix: Experimental wording

a. Change of location task:

	English Version		Tongan Version
1	This is Alex's favourite toy!	1	*Ko e me'a va'inga eni 'oku sai'ia ai 'a Alex!*
2	She is going to put her toy in here while she goes outside!	2	*E tuku 'e Alex 'a e me'a va'inga 'i heni ki mu'a pea 'alu ki tu'a!*
3	See, it is right here! She is going to play with it when she gets back!	3	*Sio 'oku 'i heni. 'E va'inga 'aki 'i he'ene foki mai*
4	Control question: Where is the toy?	4	Control question*: Ko fē 'a e me'a vainga?*
5	Take the toy and hide it in the other box!	5	*To'o e me'a va'inga 'o fūfuu'i 'i he ipu 'e taha!*
6	False belief question*:* Where is Alex going to look for her toy when she comes back	6	False belief question: *'E fakasio nai 'e Alex 'ene me'a va'inga ki fē, he'ene foki mai?*

b. Deceptive container task:

	English Version		Tongan Version
1	Induced belief question*:* What do you think is inside?	1	Induced belief question: *'Oku ke pehē ko e hā e me'a 'oku 'i loto?*
2	Reality question: What is inside, what do you see?	2	Reality question: *Ko e hā e me'a 'i loto, ko e hā 'oku ke sio ki ai?*
3	Representational change question*:* Before you opened it, what did you think was inside?	3	Representational change question: *He te'eki ke he fakaava, na'a ke pehē ko e hā me'a 'oku 'i loto?*
4	False belief question I*:* Your *tokoua* (same-sex sibling/ cousin) has not seen what is inside. What do you think your *tokoua* thinks is inside?	4	False belief question I: *Oku te'eki ke sio ho tokoua ki he me'a 'oku 'i loto. Ke pehē 'oku ne pehē ko e hā e me'a 'oku 'i loto?*
5	False belief question II: Your *mehekitanga* (father's sister) has not seen what is inside. What do you think she thinks is inside?	5	False belief question II: *'Oku te'eki ke sio ho mehekitanga ki he me'a 'oku 'i loto. Ke pehē 'oku ne pehē ko e hā e me'a 'oku 'i loto?*
6	False belief question III: The *tu'i* (king) has not seen what is inside. What do you think he thinks is inside?	6	False belief question III: *'Oku te'eki ke sio ho tu'i ki ho me'a 'oku 'i loto. Ke pehē 'oku ne pehē ko e hā e me'a 'oku 'i loto*?

Notes

1. Different terminologies are used to describe these two hierarchical structures: Gifford (1929: 17, 108) calls it "social classes" versus "rank within the family", Kaeppler (1971: 174) uses the terminology "societal ranking" versus "social status", and Bott (1981: 15, 20) describes it as "authority and rank in the society as a whole" versus "authority and rank in domestic kinship".
2. It was decided to use two instead of three boxes as prior research has shown that children's performance on false belief tasks may indeed be due to belief understanding and not merely linked to children using a 'seeing = knowing' rule (not seeing = ignorance) (Garnham and Ruffman 2001).

3. In order to guarantee the children's familiarity with the objects, it was considered to adapt the material closely to the cultural setting. Thus, we initially thought about using a more traditional Tongan container, such as: a) a typical Tongan basket woven from a coconut palm leave (*kato tokonaki*) that serves as vessel to carry and store food and other small items, or b) the Tongan-style aluminium foil, i.e. a banana leave that is used to wrap meat with taro leaves (*lūʻ*) to cook them in the traditional earth oven. Yet, the basket bears the risk that the probands might catch a glimpse of the content through the crannies, i.e. the fabric is partly transparent. This would most probably weight the results. The banana leave wrap instead is non-transparent and it is associated with a more specific content as required for the experiment. However, we also decided against it; in this case for practical reasons: It requires quite some skills to wrap and tie up this kind of vessel and it turned out to be fairly time-consuming to open and close the banana leaf wrap again. Apart from that, we experienced that some children of rather urban areas did not know this traditional wrap any more as their families replaced it by imported aluminium foil. Thus, the common Tongan cooking pot was finally viewed as the best option: being non-transparent, familiar to all children and easily to handle.
4. Tongans generally do not react in a shy way on photo and video equipment. In contrast, they enjoy being photographed or filmed. Also, camera equipment is familiar to them because they use it themselves on special occasions (own observations).
5. In contrast to Gopnik and Astington (1988) who suggest a general relation between representational change and false belief understanding (cf. "Experimental design"), these findings support this notion only to a certain degree: Giving incorrect answers on the representational change task is indeed associated with failure on false belief, but not vice versa. Succeeding on representational change is not linked with good performance on false belief. Thus, it seems that the ability to represent one's own prior false belief is necessary, yet not sufficient, to predict performance on false belief.
6. It is worth mentioning that this is in accordance with the results of Callaghan et al. (2005: 381) for Samoa, where the four-year-old children also predominantly fail the change of location task. This might suggest a slightly delayed development of a theory of mind in Polynesia compared to other cultural contexts, such as India

(Callaghan et al. 2005). However, this has to be tested with larger samples of four-year-old subjects taking the exact ages in months into account. Furthermore, it is of great importance to consider culture-specific causes.

7. In Tonga, the emotional, subjective inner state of a person is called *loto* ("heart, mind, desire, will", etc.). In contrast to the concept of *anga* ("nature, behaviour") which describes social behaviour, either *vale* ("socially incompetent") or *poto* ("socially competent") (cf. "Childhood and socialisation"), *loto* implies the idea of individual autonomy (Morton 1996: 71-77).

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ANDREAS MAYER and JULIUS RIESE

3 False Belief Understanding in Samoa: Evidence for Continuous Development and Cross-Cultural Variability

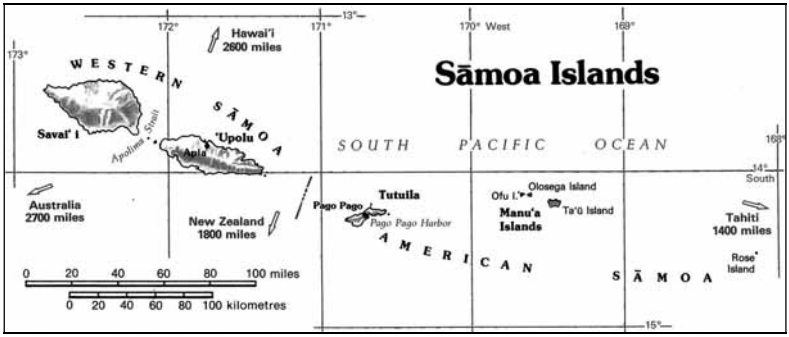
Does the development of so-called theory of mind competences in children follow universal patterns across different cultures and societies or is there some degree of cross-cultural variability in the acquisition of this milestone of human cognition? This study provides some empirical evidence regarding this important question of cross-cultural developmental psychology from a region of the world that may prove particularly enlightening in disentangling the complex web of interdependencies between socio-cultural factors and individual socio-cognitive development – the Samoan islands in Western Polynesia. In order to investigate the peculiarities of theory of mind development in this island society and to check whether the conceptual change between three and five years of age that has been observed in other societies can indeed be considered as universal, false belief tests were carried out among some 300 Samoan children aged three to fourteen. These tests were conducted by psychologist Andreas Mayer on the islands of Savai'i and 'Upolu from February to March 2008. Cultural anthropologist Julius Riese advised the study on the socio-cultural background and on the interpretation of the findings.

We will first give an introduction into the ethnographic setting of the research area, especially into aspects of the history, social structure and socialisation practices of the Samoan people which are central in shaping the socio-cognitive development of Samoan children. Drawing on this ethnographic background as well as on studies which present evidence for specific Samoan concepts of other person's minds and for the question whether they may be regarded by many Samoans to be "opaque" to others, we develop two hypotheses about theory of mind development in Samoa: one according to which theory of mind competences may develop particularly fast and early in Samoan children and a second one

according to which those skills might develop later than in other societies (where no cultural concepts about the "opacity" of other person's minds exist). In the second part of our chapter, we test these two hypotheses against the empirical research that has so far been conducted on the acquisition of theory of mind competences by Samoan children and against the results of our own tests.

Samoa: history, social structure, socialisation

The Samoan archipelago – a chain of volcanic, widely reef-fringed islands with mountainous interiors (Ward and Ashcroft 1998) – was settled in the 9th century BC by Austronesian Lapita people (Burley et al. 2012, Kirch 2010, Petchey 2001). Over the following centuries, the Lapita Cultural Complex developed into "Ancestral Polynesian Culture and Society" (Kirch and Kahn 2007, Rieth and Hunt 2008). Subsequently, a local variety of Polynesian culture evolved known as *fa'a Sāmoa* or *aganu'u Sāmoa* (the former literally meaning "the Samoan way") (Va'a 2001: 47, 2006: 119-120).



Map 3.1: The Samoan Islands (source: Bier 1990, © University of Hawai'i Press)

The Samoans' livelihood was based predominantly on subsistence horticulture and fishing along with keeping domesticated animals such as pigs and chickens (cf. Meleisea 1987: 5-9). Contact to *pālagi* (white people/Europeans) intensified only after the arrival of missionary John Williams of the London Missionary Society in 1830 (Meleisea et al. 1987: 43-46; Va'a 2001: 48). Since the year 1900, the eastern part of the archipelago has been under continuous political control of the United

States of America. The western part was a German colony from 1900 to 1914, subsequently administered by New Zealand and eventually gained independence in 1962 (Meleisea and Schoeffel 1983: 86; Meleisea 1987; Meleisea and Schoeffel-Meleisea 1987; Ward and Ascroft 1998: 1; Hiery 1995: 109; Va'a 2001: 50, 60; Kreisel 2004: 181).

Social structure

As holds true for other Polynesian cultures (cf. e.g. Kirch 1984, Oliver 2002: 209-213), a strict hierarchical organisation (stratification) applies to Samoan society. Because of its elaborate chiefly system (*fa'amatai*), it has also been described as "aristocratic" (Va'a 2006: 120, cf. also Va'a 1998). The central unit of Samoan society is the extended family (*'āiga*) which is headed by a *matai* (titled person). The Samoan descent system might be interpreted as "optative" with a strong bias towards the male line (Va'a 2001: 50-51). Several *'āiga* make up a *nu'u* (village polity).

Since the end of World War II, many Samoans have been migrating overseas, mainly to the United States, New Zealand and Australia. Today about half of all Samoans live outside Samoa (Gough 2006: 88, Ward and Ashcroft 1998: 43). The global Samoan family networks are sometimes described as "international corporations" (Va'a 2006: 119) or "transnational corporations of kin" (Ahlburg and Song 2006: 110; Gough 2006: 88). So contemporary Samoan society stretches far beyond the Samoan archipelago itself (Va'a 2006: 119). Moreover, in a dynamic process of transformation, Samoans have adapted their culture to changes brought about from outside. As a result, the *fa'a Sāmoa* still is and will keep evolving and changing as are the environments it is practised in (Va'a 2006).

Socialisation

Margaret Mead's 1928 study of adolescence in Samoa, its extensive criticism by Derek Freeman in the early 1980s and the subsequent academic and public debate – often referred to as the "Mead/Freeman controversy" – brought Samoan socialisation practices to the forefront of a wider anthropological and, indeed, a worldwide public audience (Mead 1963; Freeman 1983, Freeman 1999; cf. Kroeber-Wolf and Mesenhöller 1998: 16-20, Beer 2001). A quarter century on, this controversy remains by and large merely of interest to the history of anthropology and anthro-

pological thought. The following account focuses on socialisation in childhood until about the age of thirteen to fourteen.

Samoa is a country with many children: In 2001, almost 41% of the total population was aged under fifteen. In the same year, the total fertility rate was 4.3 and the crude birth rate at 29.1 (So'o et al. 2006: 203-204). Thus, Samoan children grow up with many brothers and sisters and other peers around them (Kroeber-Wolf 1998: 248-250). Furthermore, Samoan children do not grow up in the surroundings of their nuclear family alone, but rather within their wider descent group or extended family. Besides the children's brothers and sisters and parents, these *'āiga* usually comprise of many other relatives such as grandparents, aunts and uncles, cousins and often also adopted children. All those people would usually live together at the *'āiga*'s traditional residential site made up of a number of *fale* (houses) for different family members or household groups and different functional uses. Traditionally, *fale* are open-built houses with thatched roofs, but today they are frequently replaced by *pālagi*-style houses with walls and corrugated iron roofs. The residential unit of a Samoan *'āiga* may consist of up to 30 persons or more and span up to four generations (Kroeber-Wolf 1998: 249-250).

The fact that the Samoan language traditionally does not differentiate between siblings and cousins (all called *uso* meaning "brother" or "sister") or between parents and aunties and uncles (all referred to as *tamā*/father or *tinā*/mother respectively), illustrates that the extended family rather than the core or nuclear family forms the central unit of the Samoan social structure in which a child is brought up. Parenthood is shared among a wider range of relatives than only mother and father and includes older brothers and sisters and cousins as well as aunties and uncles (Kroeber-Wolf 1998: 252-253).

The traditional village architecture of open-built houses standing close to each other allows almost no privacy. On the one hand, this enhances social interaction, on the other it can also mean a lot of pressure on individuals as one is under almost constant scrutiny. In the case of children, one would expect that it enables an early and fast development of socio-cognitive skills. It also guarantees that babies and toddlers are at practically any point in time under the observation of someone (Kroeber-Wolf 1998: 250). Beyond their *'āiga*, Samoan children are part of the local village community (*nu'u*) which similarly is characterised by a high degree of social interaction among peers as well as across age groups and involves a lot of communal activities.

The large number of children in Samoa and their early involvement in an extended family network as well as in the wider village community does not mean that they are attributed a central position in social life or, indeed, being given any high degree of attention. On the contrary, one might describe their position as being at the bottom of the social hierarchy or, as Va'a (2006: 121) put it, "at the bottom of the ladder". Because of the hierarchical nature of Samoan society and following the principle of seniority (Va'a 1998, 2006: 120-122), children are educated to exercise utmost respect for and obedience to elders. Observing authorities and serving people who are accorded higher social status than oneself are among the social mores of the *fa'a Sāmoa* which are – by practice – made clear to children from very early on (Kroeber-Wolf 1998).

Kroeber-Wolf (1998: 252-258) distinguishes the following main stages in the socialisation of Samoan children: over the first couple of weeks after delivery, the mother is exempted from her duties towards the family and village in order to recover. During this time, she stays close to her baby and takes full responsibility for it. As soon as these first weeks have passed, however, the mother returns to her normal work and the infant is now being looked after by his or her older siblings. All other members of the *'āiga* also pay a lot of attention to the baby during this time and display lovingly care for it. This period continues until the infant is about 18 to 20 months old (Kroeber-Wolf 1998: 252-253).

The following time sees a rather dramatic shift regarding the attention and affection offered to the toddler. Whereas before, the small child was always being picked up and given comfort by relatives when it cried, it is now practically being left alone and made to look after itself. Affectionate love and attention are in a relatively abrupt manner superseded by harsh words and orders. Increasingly, the child is made to perform small tasks and duties in the household which become bigger and more frequent as the years go by. During this phase of life, an older brother or, more commonly, an older sister is usually given responsibility for the child (Kroeber-Wolf 1998: 253-257).

Learning largely takes place in the form of the child following older people and observing and copying their behaviours and skills. There is little in the sense of formal education of children by their parents. Hardly would parents take time to explain things in length to the child. The approach of "learning by observing and doing" is facilitated by the fact that children are not excluded from attending any sort of activities or events in the village as long as they follow the social etiquette, i.e. pay due

respect to seniors, stick to their place in the social order and behave accordingly (Kroeber-Wolf 1998: 255-256). In Samoa, "high status persons tend not to evidence an awareness of interest in the activities of lower status persons immediately around them" (Ochs 1982: 81-82). This rule of thumb also applies to adult-child interactions. As a consequence, young Samoan children learn to participate in verbal interactions with adults and older siblings in ways that are "strikingly different from those described in Western societies" (Ochs 1982: 86). This can be traced back to early infancy. Samoan children and their caregivers do not engage primarily in dyadic verbal or nonverbal exchanges like in Western cultures, where many caregivers expand what their children say and try to interpret vocalisations as well as gaze or gestures and to mirror these interpretations to the child. This process of interpretation "involves assessment of the intention behind the verbal or nonverbal behaviour. In terms of transmission of culture, the caregiver is demonstrating that intentions are important" (Ochs 1982: 99). However, assumptions about caregiver-child interactions in Western cultures do not necessarily represent the Samoan child's social life. Because in traditional Samoan society less emphasis is put on intentionality (Ochs 1982), Samoan caregivers do not expand the child's expressions. Instead, children are encouraged to imitate adults' expressions. Ochs points out the difference:

> In expanding, the caregiver attempts to repeat what the child has expressed. In elicited imitation, the child attempts to repeat what the caregiver has expressed. In expansions, the caregiver engages in some degree of decentering. In imitations, the child engages in limited decentering. We find in traditional Samoan society, a heavy reliance on the latter and minimisation of the former (Ochs 1982: 99).

In Western cultures, in contrast, psychological states of others are generally regarded as suitable objects of conjecture:

> We propose, test, and dispute theories concerning others' intentions, motivations, attitudes, and the like. This philosophical principle runs rampant in our everyday speech. Among other routes, it is transmitted to small children through repeated responses to unintelligible and partially intelligible utterances (Ochs 1988: 29).

Moreover, Samoan caregivers generally do not simplify their speech in addressing small children. Neither do they break down propositions into

rhetorical questions and answers, nor do they express propositions with children through test questions or answers and sentence completions. Furthermore, they do not engage in labelling routines with small children because Samoan caregivers "do not ask children questions to which they know the answers" (Duranti and Ochs 1986: 226). In contrast, such practices are very common among caregivers in Europe and North America. These differing practices must be seen against the background of socialisation goals in Samoa. According to Ochs, one of the major socialisation messages to the child is not to draw attention to himself or herself and not to talk about the ego. Instead, the focus lies on properties and actions of others (Ochs 1982).

At about the age of ten, children work almost as much as adults do. Their responsibilities include helping in the family plantation, cleaning up, fetching water, looking after younger ones etc. This is also the time when a stricter separation of boys' and girls' activities is enforced. In this context, particular attention is being given to the relationship between brothers and sisters (Kroeber-Wolf 1998: 257). Social relationships in Samoa are generally known as *vā*. The brother-sister relationship is classified under the category *vā fa'a-feagaiga* meaning a contract-like agreement between two complementary parties such as between *ali'i* and *tulāfale* (Va'a 2001: 53-54). The fact that "(…) Samoans exercise extreme care in their behaviour towards their siblings of the opposite sex" (Va'a 2001: 53) reflects the societal ideal of achieving "(…) a balance between the political power of the *tama tane* [male descendants] and the moral authority of the *tama fafine* [female descendants] (…)" (Va'a 2001: 53). Because a sister can theoretically lay claim to the family's *matai* title, her brother will throughout his life try to please and support her and pay utmost respect to her – a social rule that children are trained to abide by from early on (Kroeber-Wolf 1998: 257).

From about the age of thirteen or fourteen, children are getting increasingly involved in the organisations of untitled men (*'aumāga*) or unmarried women (*aualuma*) respectively and thus are obliged to fulfil various tasks for the village community (Meleisea 1987: 7; Kroeber-Wolf 1998: 258). Traditionally, the *'aumāga* was regarded as the *malosi o le nu'u* (strength of the village) while "the *aualuma* represented the honour of the *nu'u* (…)" (Meleisea 1987: 7).

Besides their *'āiga* and the village community, an integral part of children's lives is of course school. The ways of teaching and learning in Samoan schools reflect the hierarchical and – as some may put it – "au-

thoritative" character of the Samoan social system (Kroeber-Wolf 1998: 263-264). Corporal punishment, for example, has until recently been a frequent practice in Samoan schools. At the same time, schools may be regarded as stepping-stones to the world outside Samoa or to segments and places of Samoan society which are to a greater extent shaped by *pālagi* ways of life. It is through education that young Samoans may get paid jobs in the country's public or private sector or, indeed, the chance to migrate overseas. School is in both Samoan and English and a lot of Samoan children actually grow up in bilingual surroundings. This can be expected to constitute a stimulating factor in the children's cognitive development.

Samoan children have a lot of obligations towards their families, their villages and their churches and school is time and energy consuming, too. The older the youngsters get, the higher the expectations brought upon them by their families and communities. The hierarchical nature of Samoan society allows little personal freedom or individualism. At the same time, young Samoans are increasingly exposed to lifestyles placing these values at their very centre. All this easily mounts up to a degree of pressure which many young Samoans cannot stand. It is a sad fact that the country has one of the highest youth suicide rates in the world (Kroeber-Wolf 1998: 264-266; Aiavao 2006: 74-76; for a vivid literary perspective on growing up in contemporary Samoa see Figiel 1998, cf. also Wendt 1994).

Looking at the upbringing of Samoan children, one might identify from the previous discussions the following key factors as potentially contributing in a positive way to an early and fast development of social and cognitive skills among Samoan children:

(i) high degree of social interaction with peers and all other age groups from early on (growing up in a socially and spatially open environment of an extended family, peer group and wider village community; shared parenthood amongst relatives),
(ii) being taught to be independent from an extremely young age (need to orientate, cope, adapt and learn on one's own in a complex social setting),
(iii) fulfilling various obligations and duties towards family members, church and village from early on,
(iv) growing up in bilingual (schools, many families) and bicultural or culturally hybrid environments (juxtaposition and mixing of *fa'a*

Sāmoa and *pālagi* lifestyles, village and urban life, global migrant networks), thus "living in several worlds".

From these key points, our first hypothesis about the development of false belief understanding in Samoan children is deducted:

Hypothesis 1: The social environment in which Samoan children grow up can be expected to be particularly conducive for an early and fast development of cognitive skills such as theory of mind competences. Children in contemporary Samoa grow up in an environment that is socially demanding, yet extremely stimulating. From a very young age, they are required to actively integrate themselves into a complex social fabric while being exposed to a variety of (often conflicting) social, cultural and linguistic influences within the wider framework of a dynamic society that has permeated all levels from the local to the global – in short: an environment that may be particularly stimulating for an early and fast development of cognitive skills related to social interaction.

Our second hypothesis arises from a number of anthropological studies which have recorded observations according to which there is some degree of reservation or even unwillingness on the part of many Samoans to contemplate on or talk about other person's mental states or inner feelings. We will develop this second hypothesis on the basis of the following section on Samoan concepts of inner experience.

Samoan concepts of inner experience

Anthropologists specialised in Samoa report a vibrant sociality as well as a corresponding inattention to inner life (Mageo 1989). Attention to inner life seems to be a precondition for learning how mental states might guide and influence behaviour. According to Lillard (1998), people in some cultures (including the Samoans) do not discuss minds and are indifferent towards mental states. For example, Duranti (1993) stated that intentions in Samoa are less important for interpreting speech. Years later, Duranti (2008) even speaks of an "opacity doctrine" and refers to the claim in some Pacific and Papua New Guinean societies, that it is impossible to know what goes on in another person's mind (cf. Träuble et al. Chapter 1). Mageo (1998: 64) states that Samoans, being indefinite about their own interior life, also deny the possibility of knowing anyone else's. Accordingly, Shore (1982:149) observed a "reluctance to discuss

or pursue purely private experience". This seems to apply both for what is going on in oneself and in others (Duranti 1993, 2006).

In Samoan thought, the personal side of the self is localised in the *loto*. The term *loto* "denotes the subjective dimension of experience" (Mageo 1998: 139, 145) and refers particularly to individual will. The word "is derived from the word loloto" (Mageo 1998: 64) which is used for depths in general as well as for depths of the sea. According to Mageo (1998), one important aspect in Samoan socialisation practices is to teach children to hide their inner feelings and desires and to restrain their expression. This is tantamount to teaching children to be strong and brave (*lototele*). Practices like shaming and teasing serve the function to cloak this personal side of the self. Mageo argues from a psychoanalytic point of view. Samoan children have to learn not to attend to themselves but to direct their attention externally to others. The child's desire for individual attention is labelled with negatively connotated *fia*-terms (Mageo 1998). The Samoan word *fia* designates desire and can be translated with the English verb "to want". There are a number of terms that negatively label children's desire for individual attention, for example *fiapoto* ("want to be smart"), *fiasili* ("want to be the best"), and *fiafa´alialia/fiasiō* ("want to make a show, to show off"). Considering these terms, what children want is not simply attention, it is the desire to be perceived as being different, unique or better than others. This desire is not only negatively labelled; it is also transformed into something undesirable through the practice of teasing, as teasing "gives the child attention in an unpalatable form" (Mageo 1998: 63). In this way, the desire for individual attention is also linked with a negative emotional experience as children are taught that attention might be painful. A special kind of this practice is called *faipona* which is "directed either at personal shortcomings and deformities or at the private side of experience" (Mageo 1998: 64). Although teasing in Samoa is generally a playful way of relating with children, it is more than that. Teasing focuses on personal things and the private aspects of the self. The observed Samoan "tendency to cloak the personal side of the self is also the effect of teasing" (Mageo 1998: 67). Being teased, therefore, results in specific feelings like *matamuli* (lit. "eyes behind, shy") and *mā* ("embarrassed") (Mageo 1998: 98). These feelings might be the first-felt contacts with what others have called opacity doctrine (Duranti 2008; Robbins and Rumsey 2008) and teasing might precisely be an early lesson that implicitly teaches this doctrine:

The child who is *mā* resolutely conceals inner thoughts and feelings. This habit of hiding an aspect of the self from others leads to hiding it from oneself: Samoans are generally indefinite about their own interior life and forswear the possibility of fathoming anyone else's (Mageo 1998: 64).

So we can say that socialisation practices in Samoa teach children to behave in a socially appropriate way, suppressing impulses that arise from the *loto*. The focus on socially appropriate behaviour is also reflected in the Samoan language: whereas *loto* denotes the origin of personal impulses, *āmio* denotes the behaviour that stems from it and represents "the socially unconditioned aspects of behaviour that point away from social norms, toward personal drives or desires as the conditioning factors" (Shore 1982: 154). It denotes behaviour originating in a person's own will (Mageo 1998: 145) and "is best understood as a derivative of that part of the self which Samoans call the *loto* and which we call subjectivity" (Mageo 1989: 181). Another term, *aga*, refers both to the essential nature of persons and things and to "characteristic social behaviour and to the roles one plays" (Mageo 2002: 341). It is "prescriptive, suggesting categories of abstract behavioural styles appropriate to certain socially defined statuses" (Shore 1982: 154). In a sense, social control as well as socialisation in Samoa can be understood "as public constraint over private impulses or, in other words, as the imposition of *aga* over *āmio*" (Shore 1982: 186).

These discussions lead to the formulation of our second hypothesis:
Hypothesis 2: Because of a proposed cultural concept of a relative "opacity" of other person's minds or inner states, and because of reports which suggest that the personal dimension of experience as captured by the term *loto* might be rather suppressed or cloaked, false belief understanding may develop later in Samoan children than in children from societies where no such cultural concepts exists. An important element to this argument is that if such an "opacity doctrine" really exists, relatively little time might be devoted in conversations between children and their caretakers to the topic of what other people may think or feel. The exposure to mental state talk, however, might be an important factor in the development of mental state understanding (Dunn et al. 1991).

Following an account of empirical research so far conducted on theory of mind development in Samoa in the next section, we will turn to the tests conducted by ourselves and test their results against the two hypotheses formulated above.

Theory of mind in Samoa: empirical background

When Callaghan et al. (2005) tested false belief understanding among children in five different countries including Samoa, they confirmed what most researchers would have expected: a conceptual change between three and five years of age and universal synchrony in the onset of false belief understanding across the five cultures investigated. Callaghan et al.'s aim was what Berry et al. (2003) have called cross-cultural psychology's "first and most obvious goal" (Berry et al. 2003: 3): to test the generality of existing psychological theories. However, the result of the five-year-olds in Samoa was significant only at $p < .10$ whereas the results of the five-year-olds in Canada, Thailand, India and Peru were significant at $p < .01$. Callaghan and colleagues did not check this interesting difference any further and assumed that Samoan children's performance is in line with general assumptions about the development of mental state reasoning. However, there are and always have been voices that questioned the universal onset of mental state reasoning and came up with empirical evidence that spoke for significant differences between cultures (Wahi and Jori 1994; Vinden 1996; Naito and Koyama, 2006; Liu et al. 2008).

Bearing our first hypothesis in mind, one might expect Samoan children to develop false belief understanding early because they grow up in a culturally and socially stimulating environment with lots of siblings of the extended family around. As a matter of fact, some studies have observed that children who grow up in an environment with more siblings develop theory of mind skills earlier than children who grow up alone (Perner et al. 1994; Jenkins and Astington 1996). The so-called "sibling-effect" might help Samoan children to develop mental state reasoning at an early age. From this perspective, the results of Callaghan and colleagues (2005) are not surprising. But we have also seen that there are anthropological studies, which led us to developing our second hypothesis according to which Samoan children might develop theory of mind abilities later. As the results of Callaghan and colleagues are not as convincing for the Samoan group as for the other groups they investigated, we maintain our two hypotheses as formulated above and approach the question of how theory of mind develops in Samoa with a broader sample (for another perspective on this study and an additional follow-up, see Mayer and Träuble 2013).

Research method

Location and time of research

The research was conducted on the Samoan islands of Savai'i (in two villages, referred to as village 1 and village 2) and 'Upolu between February and March 2008. Although Savai'i is the largest island of Independent Samoa, it is less populated than the island of 'Upolu where the capital Apia is located. On Savai'i, children attending the governmental preschool in village 1 as well as the primary schools in village 1 and village 2 were tested. Both villages are located in coastal southeastern Savai'i. The biggest settlement nearby is Salelologa. On 'Upolu, children attending a private school in Apia were tested. The research focused on the island of Savai'i as the majority of the children were tested there.

Experimenters

Most of the experimenters – all of them university graduates and fluent in English – were Samoans from the villages in which the research was done. If not available, other Samoans from nearby villages were asked to assist. Unfortunately, it was not possible to do the testing with one and the same assistant as they all had other obligations and were only available for one or two days each. Altogether three experimenters, two female and one male, did the testing in the different schools on Savai'i. Two of them were living in village 2, one in village 1. On 'Upolu, two female teachers who were well known to the children assisted in the Samoan Primary School.

Participants

	Pre	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Total
Village 1	13	26	19	23						81
Village 2		9	4	8	14	19	18	17	16	105
Apia		8	19	20	33	22				102
Total	13	43	42	51	47	41	18	17	16	288

Table 3.1: Number of children tested per class/school and village

A total of 302 children participated in the course of ten weeks. The results of eleven children were excluded, mainly because their birthdates

were not written down in the teachers' documents or because of procedural errors by the experimenters during the first trials. Of the remaining 291 children, three repeatedly gave the wrong answer to a control question and so they were excluded from further analysis. Hence, the statistic analysis was done with a final sample of 288 children, fairly even split between boys (142) and girls (146).

False belief task

A variation of a false belief task that has already been applied in Samoa by Callaghan et al. (2005) was used in the present work. In Callaghan's study, a first experimenter (1) hid a trinket under one of three bowls and then left the room. A second experimenter (2) stayed with the child inside the room and suggested to play a trick on experimenter 1 and hide the trinket under another bowl. After changing the trinket's location the child was asked where experimenter 1 would look for the toy when coming back. Children indicated their choice by pointing and were scored having passed the task if they pointed to the location where the trinket was hidden at first and as having failed if they pointed to the location where the trinket was moved while experimenter 1 was absent (Callaghan et al. 2005).

The differences between the task just described and the one applied in this work are minor but important and reflect the necessity to find culturally appropriate tasks. Of less importance is the fact that different materials were used. A small wooden ant-like insect that jumped into the air when being pushed downwards served as the object that was hidden in the course of the test. The toy was chosen because it attracted the attention of the children when jumping and because children in Samoa are familiar with big insects. Instead of bowls, three white cups were used. Like in Callaghan's task, three cups were used even if two would do for the test. But as every child was tested only in one trial, three cups diminished the possibility of pointing at the correct cup by mere chance from 50% to one third.

The most important difference to Callaghan's task was that two children were sitting opposite to only one experimenter who was a local assistant, preferably a person from the same village as the children and hence familiar to them. The names of the children were noted before and were used by the assistant throughout the procedure. Child 1 was asked to hide the ant under one of the three white cups. If he or she did not react after repeatedly being asked to do so, the assistant hid the ant and

said "Look, I put it under here!" Afterwards, child 1 was sent out of the room and it was made sure that he or she could not look inside. Child 2 stayed with the assistant and was asked under which of the cups the ant was. This control question assured that child 2 had actually seen how child 1 hid the ant. Then the assistant suggested to play a trick on child 1 and to hide the ant under another cup. After the ant was placed under a different cup and after putting the cups in line again, the false belief question was given to child 2. Child 2 was asked under which of the cups child 1 would look for the ant when coming back into the room. Child 2 indicated his or her choice by pointing. If there was no reaction, the question was repeated and finally emphasised by the assistants' pointing to all three cups while asking with constant emphasis "Under this one? Under this one? Under this one?" After that, child 2 was given a reward (sweets or balloons) and sent back into the classroom. Child 1 came back into the room and a new child, child 3 entered the room. It is important to notice that child 1 did not get the chance to look again after the ant in the presence of child 2, i.e. child 1 was not told about the new location of the reward and that a trick was played on him or her by child 2. In doing so, the procedure could be repeated, but this time it was child 3 who hid the ant and child 1 who was asked where child 3 would look for the ant after the change of location. In this way, each child was first in the role of the hider and after that in the role of the trick-player. The main difference between Callaghan's task and the one applied here is that instead of thinking about where the adult experimenter would look for the hidden object, the child had to think about where another child of more or less the same age and from the same class would look for it. This variation bears some advantages in the context of Samoan culture. First, the child does not have to think about the mind of an adult or, what might be even more difficult, the mind of a *pālagi* (white person). Second, it might be deemed socially more inappropriate to reveal the false belief of an adult than that of another child as Samoan children are taught to be respectful and obedient to adults from very early on. The participating pairs of children were familiar with each other and had experiences with each other's "minds". Compared with Callaghan's procedure, one could argue that the one used here is more sensitive in terms of social etiquette because it is probably easier for a child to play a trick on a classmate than on an unknown white adult. Finally, children might be less frightened during the testing procedure if they enter the room in pairs rather than on their own.

There is another reason for questioning tasks involving the deception of an experimenter: participants could assume that the experimenter knows about the whole procedure of the task. According to Siegal (1993: 122), "children recognise that adults ordinarily have more knowledge than they do." In Samoa, pupils will immediately notice a stranger in the school building and they will assume that something special must be going on and that the visitor has something to do with it. If the *pālagi* takes over the role of experimenter 1 and leaves the room, it is not unlikely that the child does not consider his absence during the change of location and when answering the false belief question because it is the *pālagi* who brought the game and therefore he will probably know about it. Even if such an explicit inference was rather unlikely, the procedure chosen is still more resistant towards this alternative explanation which, theoretically, can pose a problem to the procedure applied by Callaghan et al. (2005).

Procedure

A video camera was put on a table close to where the experimenter and the children sat and recorded the testing. It remained there throughout the whole testing procedure. Had it been in the hands of someone filming, the children could have been distracted from the task. Of the 288 children included in the analysis, 277 (96.2%) were filmed. Because of the open structure of the school buildings and because of the curiosity of the children, it was necessary to separate those children who had already been tested from the others to ensure that children who were to be tested subsequently could not observe the procedure or interfere with it. The following instructions were given to all children in Samoan:

To Child 1:
1) "Put the toy under one of the cups."
2) "Please go outside and wait there."
Tu'u le loi i lalo o se ipu.
Alu i fafo.

To Child 2:
1) "Where is the toy?"
2) "Let's play a trick on X. Hide the toy under another cup."
(optional: "Make sure that he/she does not see you".)

3) “Where will X look for the ant when he/she comes back?”
O fea le loi?
Se‘ i fa‘ase‘e X. Tu‘u/Gaga le loi i se isi ipu.
(Va‘ai tei ua iloa mai X.)
O fea la e sau nei X su‘e ai le loi?

The instructions contain no mental verbs like “think” or “believe”. Instead, the children were simply asked where the other child would look for the toy. The translation of the sentences into Samoan was discussed in village 1 with a Samoan teacher who also assisted the testing as well as with another Samoan woman. During that meeting in village 1, the instructions were translated and transformed into short Samoan sentences that were adapted as far as possible to daily child language.

Assistants were instructed to stick to the translation, not to give any hints to the children and to use friendly interactions since the interactions between teachers and children are often characterised by imperatives and impatience. Each new assistant was asked about his or her opinion concerning the translation. All of them agreed and said that the sentences could be understood easily.

Illustration 3.1: False belief task in village 1 Primary School

Scoring

After being questioned where the other child would look for the toy, children indicated their choice by pointing or touching. If the pointing gesture was not clear enough, children were asked to actually touch the cup. As most of the sessions were videotaped, they could be checked for reliability afterwards. A child was scored as having passed the task if he or she pointed at the cup under which the other child who was sent out of the room had hidden the toy and as having failed if he or she pointed at the cup where the toy was moved meanwhile or the third cup that wasn't involved in the hiding process at all. There was perfect agreement between the Samoan experimenters and myself (A.M.) on children's pointing.

Illustration 3.2: Test-setting with camera in village 2 Primary School

Results

Samoan children's performance on the false belief task improved with age, but only slowly and gradually. Whereas the majority of false belief studies demonstrates that most five-year-olds pass the task, most of the five-year-old children in Samoa still failed and there was no succeeding majority before eight years of age. Most surprising was the finding that many children between ten and twelve years of age still fail. A binary

logistic regression revealed that age is a significant predictor for false belief understanding (Wald = 10.58, $p < .01$). The analysis also revealed that with increasing age the odds of the outcome to pass the false-belief task increase with the odds ratio = 1.2. The probability that a seven-year-old child passes the task is hence 20% higher as compared to a six-year-old child. Therefore, the probability to pass the false-belief task does increase with age, but rather slowly and gradually.

As another approach to the data, sex and regional provenance as well as their interaction, their interactions with age and the interaction between sex, island and age have been included as additional predictors to check whether there are any additional effects to the predictive power of age. Island could be an important predictor because the children tested on Savai'i and 'Upolu differed from each other in potentially important aspects. On Savai'i, all children tested attended governmental primary schools whereas on 'Upolu the children of a private school in Apia were tested. Of the latter, one parent was often a non-Samoan and so these children had a more Western background. However, none of the covariates and interactions contributed significantly to the prediction of children's performance and age remained as the single significant predictor.

As some authors reported an effect of schooling on theory of mind development (e.g. Vinden 2002), a second binary logistic was calculated with class as the single predictor. Although class turned out to be a significant predictor for false belief understanding as well, it was not put in the equation when a regression with class, age and their interaction as predictors was calculated (stepwise-forward method). Again, age remained as the single significant predictor.

How to interpret the results of the logistic regression? Like in other cross-cultural studies, age is a significant predictor of false belief understanding in Samoa, although it accounts for only a very small part of the total variance. To answer the question whether this understanding develops at the same age in Samoa as in Western countries, chi-square tests were done to test the null hypothesis of equal distribution of replies. First, the group of the three-year-olds was compared with the five-year-olds. In the group of the three-year-olds, five children failed and three succeeded, whereas in the group of the five-year-olds, 24 children failed and eleven succeeded. Although the sample size in the group of the three-year-olds is small, the chi-square test was calculated. The performance of both groups did not differ significantly from each other (Fisher's exact test $p = .522$). As the postulated conceptual change

between three and five years could not be confirmed, all other age groups were compared to each other in different combinations, but none of the compared groups revealed a conceptual change; the results were neither significantly different between four and six years of age nor between five and seven years of age and so forth.

Finally, the whole sample was split in two groups, the first one ranging from the youngest child (3.2 years; 1168 days) to a child with 8.0 years of age (2930 days). The second group begins with a child who was only one day older (2931 days) and ranges from that age to the oldest boy with 14.26 years of age (5205 days). Both groups consist of 144 children, the first one ranging approximately from three to eight years of age, the second one from eight to thirteen with one fourteen-year-old teenager. Figure 3.1 illustrates the difference between the two groups. In the first group, only 57 children (39.6%) succeeded on the false belief question while 87 (60.4%) failed. In the second group, it is almost the other way round: only 62 children failed (43.1%) and 82 succeeded (56.9%).

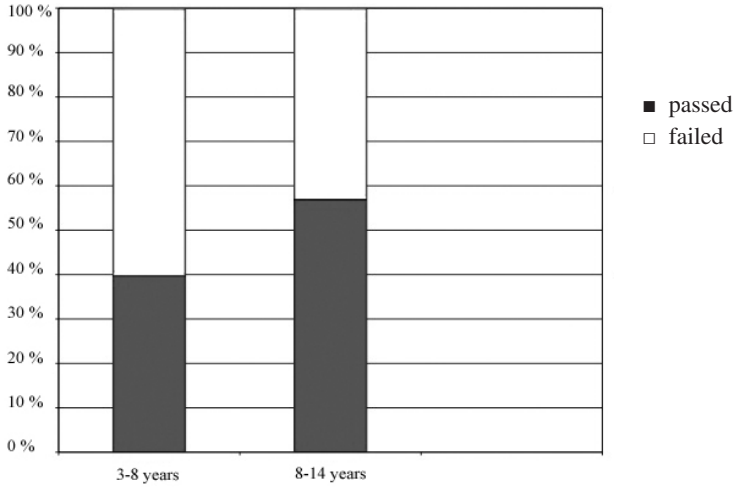


Figure 3.1: Performance on false belief task for children aged three to eight and eight to fourteen by percentage

A chi-square test was done to test the null hypothesis of equal distribution of replies. The result shows that both groups differ significantly with

regard to their performance on the false belief question ($\chi^2 = 8.691$, $df = 1$, $p < .01$). Still, the development and improvement is clearly delayed when compared to data from North America or Europe. Even in the second group, in which one would expect almost all children to pass the false belief task, over 40% failed. Still, the developmental trajectory in Samoa shows the same direction (figure 3.2.) as in other societies which is also confirmed by the result of the binary logistic regression above.

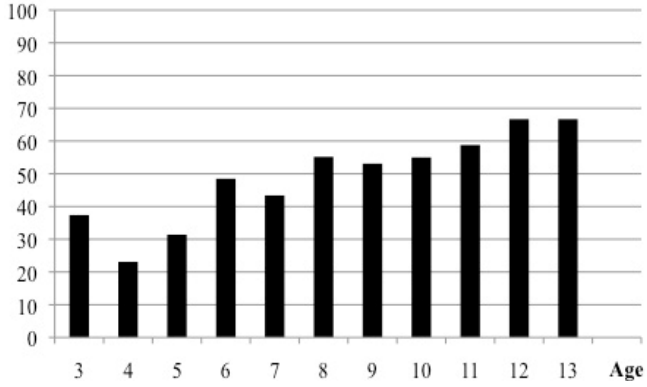


Figure 3.2: Percentage of children by age who passed the false belief task

Age	Fail	Succeed	Total
3	5	3	8
4	10	3	13
5	24	11	35
6	17	16	33
7	30	23	53
8	26	32	58
9	15	17	32
10	9	11	20
11	7	10	17
12	5	10	15
13	1	2	3
14	0	1	1
Total	149	139	288

Table 3.2: Number of children by age who failed and succeeded

Figure 3.2 indicates that there is no succeeding majority before eight years of age. It also illustrates that children improve only slowly and gradually and that there is no threshold to support the idea of a conceptual change at a certain age. Furthermore, some children still fail even at the ages of eleven, twelve or thirteen. Table 3.2 shows how many children per age group participated and how many of them failed and succeeded so that the per cent values of Figure 3.2 can be related to the sample size per age group.

Again, the results do not confirm the conceptual change between three and five years that had been found by Callaghan et al. (2005). Table 3.3 shows the results of Callaghan et al.'s study so that the data of both studies can be compared to each other.

	Correct	Wrong
3-year-olds	2	14
4-year-olds	7	18
5-year-olds	13	5

Table 3.3: Number of correct and wrong replies in the study by Callaghan et al. (2005) in Samoa

The results of the three- and four-year-olds are in line with the ones presented in this work. However, the majority of the five-year-olds passed the task in Callaghan's study (13 out of 18) whereas most of the five-year-old children in the present study still failed (24 out of 35). Considering the performance of the children even older than five years in the study at hand, it appears as if Callaghan's results for the five-year-olds do not necessarily represent the development of Samoan children at that age. This is supported by the aforementioned fact that the five-year-olds in the other countries investigated by Callaghan performed significantly at a level above chance with $p < .01$, whereas in Samoa the results were only significant at $p < .10$. With a sample of only 18 children and significance at $p < .10$, it seems not very well grounded to claim the same onset of false belief understanding in Samoa as in other societies (see Chapter 2 Tietz and Völkel for results in Tonga which rather support a universal development of false belief understanding).

Discussion

The results presented speak against the universal onset of false belief understanding as reflected in task performance as well as against an universally occurring conceptual change between three and five years of age. However, the direction of the development in Samoa supports the assumption of a universal trajectory, with a majority of children passing the task between eight and fourteen and a majority failing between three and eight years of age. The delay compared to North American and European samples proves not easy to explain. In any case, the results are not the first ones that speak for cross-cultural variability in the onset of false belief understanding (Vinden 1996; Liu et al. 2008). With reference to Vinden (1996), Callaghan et al. (2005) argue that a discrepancy of two years can be observed in the age of onset when comparing an artificial experimental procedure with a more natural setting. Could it be that the results of the work presented here are different to Callaghan's because the procedure used was not natural, "not natural enough" or at least less natural than the one used by Callaghan? Comparing the two procedures of the still very similar tasks, it is difficult to tell why the original task should be more natural than the one applied here, especially in the light of the fact that children are not confronted with two experimenters and do not have to think about an adult's mind.

What about methodological errors? A problematic and difficult aspect in cross-cultural research is the translation of the instructions. Note in this context that in our crucial question where the other child would look for the ant, the Samoan word *su'e* ("to look for") was used – exactly the same word as in the study by Callaghan and colleagues (2005) (personal communication). Moreover, the observation that many children gave the correct answer immediately and with an impish smile on their face seems to rule out the possibility that the results were generated by translational problems. However, a single paradigm is not enough to draw general conclusions. A battery of tests with different tasks that are culturally appropriate would be necessary to confirm the observed delay in false belief understanding in this study. Due to time limitations, this was unfortunately impossible.

Still, the results have to be taken seriously. It seems unlikely that minor variations of the task would have resulted in completely different results. This seems even more implausible in the light of the recent meta-

analysis by Liu et al. (2008), in which different task variations did not show any effect on children's performance. With 288 children tested, the sample size of the present study is one of the biggest in cross-cultural false belief research.

If we assume the present results to be correct, we have to ask again: what could be the factors that led to the considerable delay in false belief understanding? The relatively high number of siblings and the socially stimulating environment (early responsibilities of children, shared parenthood in which some children grow up) do not seem to positively influence their false belief performance as proposed by our first hypothesis. Other factors seem to be more influential. These factors could be the extent of mental state talk in mother-child-interaction, parenting style and others. For example, Callaghan et al. (2005) suggested that passing false belief tasks requires a certain extent of experience in listening to and participating in conversations in which mental states are shared. But what Callaghan considers to be a universal experiential factor could also be a factor that is responsible for the differences observed since there are cultures like the Samoan which are reported not to emphasise the sharing of mental states in conversations (Ochs 1988; Duranti 2008). There is, however, no model available that quantitatively or qualitatively weighs the different influencing factors. So as a consequence, in future research all relevant features of the socio-cultural environment in which Samoan children grow up need to be systematically checked for their influence on children's socio-cognitive development. Crucially, this needs to be done by joint ethnological and psychological studies using techniques of ethnographic observation and documentation by which the individual development of specific children along with their surroundings is recorded over an extended period of time. In the course of such research, only children whose upbringing and development is being monitored closely and on a continual basis would – at various points in time of their childhood years – be subjected to experimental cognitive tests. Only through such a combined approach of long-term ethnographic micro-observation and psychological tests would it be possible to determine which factors of Samoa's socio-cultural context impact on the acquisition of socio-cognitive competences by children in which ways.

Interestingly, the results of this study appear to be in line with ethnographic observations of an "opacity of mind" and one might be tempted to establish a causal link between the two (as proposed by our second hypothesis). However, it remains unclear whether the alleged "opacity

doctrine" is really an expression of underlying social-cognitive abilities or whether the term refers only to different social norms of communication. In Lillard's words, it could be "a matter of emphasis rather than one of possibility" (Lillard 1998: 22), or: "Although […] in many cultures people refuse to talk about others' minds, this does not necessarily mean that people in those cultures never think about others' minds" (Lillard 1998: 12). Consequently, Keane states that we "need to be cautious about what we are to make of opacity claims, and ask in particular, what is their real scope" (Keane 2008: 481). So the existence of an "opacity doctrine" in Samoa must be scrutinised very carefully and needs to be backed up systematically by a variety of ethnographic investigations. But even if Samoans generally assumed an "opacity" of other persons' minds and attributed less significance to other persons' intentions and mental states, this would, of course, not necessarily mean that, as a result, Samoan children acquire theory of mind competences later than children in other parts of the world.

Therefore, it is much too early and could be quite misleading to claim any influence of "opacity doctrines" on false belief understanding. Other possible factors have to be considered, too. Duranti and Ochs pointed out that Samoan parents "do not engage in labelling routines with small children, asking the child questions such as 'What's this?', to which the caregiver knows the answer" (Duranti and Ochs 1986: 226). Vinden, who could not confirm the understanding of false belief by a majority of eight-year-old Junín Quechua children in Peru, states: "One might want to argue that there is something in the nature of the tasks themselves that is producing this unusual result" (Vinden 1996: 1714). Particularly, there is something in the nature of these tasks that might be uncommon in many parts of the world, namely, that adults ask children questions to which the adults already know the answer (cf. Chapter 2 Tietz and Völkel and Chapter 5 Hölzel and Keck for similar conclusions). "This practice is a mainstay of discourse in school, and its appearance and legitimacy outside of school in Western cultures is an extension of this practice" (Gauvain 1998: 40). This practice is not matched in Samoa. Even when doing research in one's own country, "the types of tasks used in research on theory of mind are not like the kinds of everyday situations in which children are called on to understand the mind" (Gauvain 1998: 40). Therefore, Gauvain suggests to study "the real world of the playground" (Gauvain 1998: 41) and Carpendale and Lewis point to an older tradition to chart the development of children "within

the richness of the infant's daily interaction rituals and experiences" (Carpendale and Lewis 2004: 87). This suggestion applies particularly to cross-cultural research in which the difference between the scientific world of experiments and the everyday life of the people investigated is even larger. In the Samoan context, this would mean to document childrens' socio-cognitive skills as they apply them, for example, in the buzzing schoolyard during breaks, while going about their daily business in the village, when working in the family plantation or on the beach playing with friends and swimming in the lagoon.

An interesting argument was put forward by Siegal who argued that poor performance of children on experimental tasks "can frequently be explained in terms of a clash between the conversational worlds of adults and children" (Siegal 1993: vii). According to Siegal, "children have to understand that the purpose of the experiment is to test their knowledge" (1993: 73). Most probably, children do not share the assumption that the purpose of an experiment is a scientific one, namely, investigating their understanding of certain concepts. Thus, Siegal concludes: "We cannot assume that children share the experimenter's definition of the attributes relevant to the task" (Siegal 1993: 122). What is true for experimental research with children in general applies even more to cross-cultural research.

In consequence, the present results do not necessarily speak for a later acquisition of theory of mind competences. Samoan children's knowledge could be implicit and it could just be more difficult for them to make it explicit in experimental procedures than for children in other parts of the world. This interpretation is in line with Siegal's suggestion that "child development is better characterised by development towards a conscious accessibility of implicit knowledge rather than a simple lack of conceptual knowledge or coherence at different stages" (Siegal 1993: 133). This interpretation, however, would not make the results of this work less interesting. What slightly changes is the question: it is no longer why Samoan children develop false belief understanding later than children in other societies, but why they can make their understanding later explicit.

In a sense, the present results support Carpendale and Lewis' view criticising dominant ToM theories for their focus "on the cognitive architecture of mental state reasoning, without reflecting on the social landscape in which such reasoning is constructed" (Carpendale and Lewis 2004: 84). They suggest that "children gradually construct social

understanding through the regularities they experience in interacting with others" (Carpendale and Lewis 2004: 84). The present results are in line with their suggestion that theory of mind skills are acquired gradually and – against the background of reports about "opacity of mind"-concepts – suggest to have a closer look at the socio-cultural context in which mental state reasoning is learnt and applied, especially in light of the fact that the relationship between proposed "opacity doctrines" and theory of mind development is far from being clear.

Most importantly, as argued above, we should also give children the chance to show their competences in the actual context of their everyday life, which is the only one that is relevant to them.

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EVA OBERLE and JOCHEN RESCH

4 Psychology Meets Cultural Anthropology: Interdisciplinary Research with Children in Micronesia

This chapter is a written collaboration between a developmental psychologist and a cultural anthropologist. The focus of this chapter is to discuss the influence of culture on human cognition in the terms of theory of mind (ToM) development based on experimental and ethnographic research, merging two different authorial perspectives: First, the psychological perspective of the main author who carried out culturally adjusted experiments on children's ToM understanding during a fieldwork period in Micronesia in summer 2006,[1] and second, the anthropological perspective of the second author who conducted research on the islands of Yap and Fais over the course of 1.5 years, providing important ethnographic background information and culture-specific research to this chapter. The aim of the research conducted was to investigate whether preschool aged children on Yap and Fais respond to classical experimental ToM paradigms in ways comparable to children in Western cultures, or whether their response patterns differ due to the difference in culture and tradition in which they are raised.

From a psychological point of view, it can be assumed that children on Yap and Fais Island respond to the experimental ToM task in a similar way, and furthermore that their response pattern is similar to the one found in Western cultures. This reasoning is based on the theoretical assumption that ToM development in early childhood is the basis of everyday social understanding, and that its development is therefore universal (Wellman 1990). From an anthropological point of view, the experimental test results of ToM experiments on Yap Island and Fais can be expected to differ from each other and from the one found in Western cultures due to the cultural differences and the unique social structures found on both islands. Though only 250 km miles apart from each other,

Yap und Fais differ in language, cultural habits, kinship system, and explanations of the world. These differences may also impact the development of early social understanding if we consider social understanding to be culturally unique. Last, unlike in Western cultures, none of the participating children visited a preschool/headstart program or were part of any other kind of structured education at the time the ToM experiments were conducted. Some researchers have suggested that attending structured education programs in early childhood could have influences on the early development of ToM as well as children's performance on experimental tasks in general, given that the experimental situation is highly structured and therefore more familiar to those children who have previously been exposed to structured educational contexts (Vinden 1999).

The results of the experimental studies presented in this chapter reveal that the understanding of false belief develops between the ages three and five in Micronesian children, a pattern which has also been established in research studies with Western children.

The aim of this chapter is to understand, why under the given social and cultural environment, ToM development on Yap and Fais Island can be seen as comparable to the one Western societies, and how the island-specific cultural and social environment impacts children's cognitive mechanisms relevant for social understanding and perspective change in particular.

Getting research started on Yap and Fais Island

In June 2006, Eva Oberle left Germany for a three-months-long fieldwork stay on two islands of Yap State, Federated States of Micronesia – Fais and Yap Island – to conduct research on children's cognitive development by combining research methods of experimental psychology and cultural anthropology. During an intense preparation period with psychologists and cultural anthropologists prior to the fieldwork, possible ways of combining several research approaches of the two disciplines grown from completely different epistemologies had been discussed. Today, the tradition of experimental research is often encouraged in classical psychological studies, aiming for standardised experiments carried out in randomised control trials to test pre-formulated hypotheses. Research in the humanities, on the other hand, often takes an interpretative, holistic approach, allowing the research

participants to discover relevant research themes instead of forcing hypotheses on them. Even though experimental approaches are sometimes frowned upon by scholars of the humanities and interpretive research is not always valued and appreciated by psychologists, we were certain to find a way of successfully combining the best of both methodologies in this promising interdisciplinary project. Admittedly, this is where the challenge and adventure of this research project started.

Researching across disciplines

From a psychological angle, the goal was to carry out experimental research to investigate children's cognitive development of a theory of mind. The epistemological beliefs of experimental research are rooted in objectivist traditions, and their underlying theoretical perspective is a post-positivistic one (Crotty 2007). Post-positivism (also called post-empiricism) was coined by Sir Karl Popper and is today a dominant model of scientific inquiry in the social sciences, expressed through methodologies of quantifying, experiments, survey research, and methods of sampling, measurement and scaling.

From an anthropological angle, the goal was to explore the aspects of childhood, child development and their meaning in the specific cultural environment of Yap and Fais Island in Micronesia. Here, the underlying epistemology is social constructivism, expressed though the methodology of ethnography and corresponding methods of participant/non-participant observation and interviews, to name two classical ones (Crotty 2007). Dilthey described the essential difference between the humanities and sciences as a difference between "Verstehen" (German for "understanding") and "Erklären" (German for "explaining") (Schwandt 2007). According to him, those researchers who follow the "Verstehen" approach are humanistic researchers, seeking to describe idiographic knowledge by focusing on unique events and interpreting the meaning of phenomena holistically from the inside, resulting in qualitative data. Idiographic approaches tend to specify, attempting to understand subjective meaning.

Those researchers who are committed to the "Erklären" approach seek nomothetic knowledge, the knowledge about general laws, developing explanations from the outside based on quantitative data. In psychology, nomothetic measures are measures that can be taken directly by an outside observer. Nomothetic approaches usually lead to a generalised

understanding of a phenomenon rather than a specific and holistic understanding of a case. As a young researcher trained in the discipline of experimental psychology, the challenge was to be able to juggle both traditions, acknowledging both epistemologies simultaneously.

To state it simply: the combination of quantitative and qualitative research can be done. Mayring (2001) dedicated an entire article to show that quantitative research is not necessarily the opposite of qualitative research. Quantitative and qualitative methods are by no means in opposition, forming two sides of the same coin, resulting in "either – or" decisions. Quantitative and qualitative research can and should be combined more often, since both approaches complement each other, filling the each other's gaps. Besides many other possible models of combining qualitative and quantitative techniques, Mayring (2001) describes the "Vorstudienmodel", which will here be referred to as the "pre-study model". The pre-study model consists of three steps: (i) qualitative study prior to the quantitative study to develop a hypothesis, (ii) quantitative testing of the hypotheses, (iii) analysis and interpretation of the results. This model provides the main structure to the explorative and experimental research carried out on Fais and Yap Island in Micronesia.

Experimental and ethnographic research on the islands

Jochen Resch was introduced to his ethnographic field through a personal relationship to Don Rubinstein who conducted a lecture at the University of Heidelberg in 2003. One of his students, Sesario Sigam, originally from the outer island of Fais, accompanied him to give a lecture in his mother language, *Hathel Mathaw*, which is literally translated as "language of the ocean". After spending some time together and considering plans for the fieldwork, Sesario invited Resch to "his" island, which he presented as "the most traditional and most beautiful Island in Micronesia". This personal connection was found to be crucial later on as Resch found himself presented as Sesario's "brother" in the traditional Micronesian practice. Hence, Resch's fieldwork followed the route of Sesario's family. He was adopted as a son by Sesario's father and stayed at the father's house when on Yap Island, while residing at his brother's house when on Fais Island. Overall, Resch completed eight months of fieldwork on Yap Proper and six months on the outer island of Fais.

Oberle's experimental fieldwork took also place in those two locations. One of the most important things when coming to Micronesia as a researcher is to have a personal connection to a Micronesian family who agrees to take care of you during your stay. Fortunately, Oberle was put in touch with Don Rubinstein, a cultural anthropologist from the University of Guam. Rubinstein has completed multiple years of research on several Outer Islands of Yap and has been adopted into a family on Fais Island. One of this family's sons – Jonathan – now lives on Yap Island and is married to a Yapese woman – Katherine. The couple agreed to assist with planning and realising the fieldwork stay in Yap state. The young man is native to Fais Island but now lives on Yap in a village community of Fais Islanders. It was fortunate to be taken care of a "culturally mixed family" with very strong ties to both, the Yapese and the Fais community. Katherine and her family supported Oberle during her time in the village Riken on Yap island whereas Jonathan had arranged a home for her with his family on Fais Island.

On Yap Proper, the majority of children participating in the experimental research project lived in the rural districts of Gagil and Maap, north of the port town Colonia. Riken is situated in Northern Gagil. Today, approximately 6000 people live on the island, spread over the several island districts. Most of the inhabitants reside around the town of Colonia, whereas the rest lives in small, traditional villages north and south of the town. There is no public transportation between the villages, making it challenging to get around. The villages and the houses on Yap Proper are spread over a large area and are not easily accessible by foot. Yapese people are known to stay mostly in their own village. They are shy and walking up to a house of a family one doesn't know is highly inappropriate. Private land has a high status in Yapese culture and stepping foot on someone else's land without and invitation is seen as a sign of disrespect and offense. Most houses in the north of Yap are hidden in the bush, not easily visibly from the village walking path. This formed the first challenge to experimental research: how can families be approached when walking up to their house is culturally inappropriate and would be crossing a boundary? It turned out that nobody in Riken was interested accompanying Oberle to other villages to conduct research, because it would have been culturally inappropriate to visit houses in villages other than their own for most cases (an exception would be if one has family in other villages). Walking around uninvited in another village can cause suspicion amongst the villagers and feed rumours and

gossip. Furthermore, within villages, it is only appropriate for villagers to go to houses of other villagers to which they are related. These cultural barriers made the experimental research rather challenging and as a result, Oberle had to find several research assistants per village who took her to the families with children between the ages three and five they were related to.

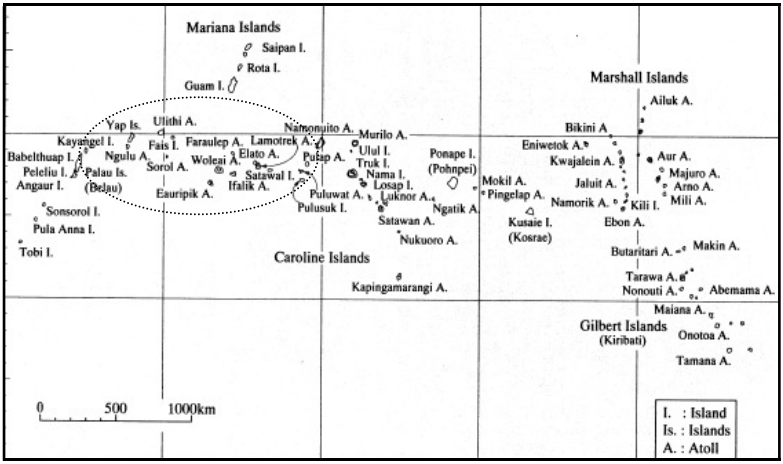
Because Oberle was staying with a high caste family from Riken, the host Dorang stressed that it was unacceptable to visit families without her consultation, because those families could potentially be from a low caste, in which case Oberle was not supposed to talk to them or eat their food as Dorang's guest. Hence, the process of collecting data was a constant juggle of obeying the cultural rules on the island and finding ways to still get access to families with children. Organising a research schedule was not easy. Instead of having an on-site experimental setting where families could come to with their children, Oberle went out with different research assistants to the different villages to find families with children at the ages three and five from preferably a high caste family. It took approximately two weeks until the word had spread across most parts of the island, and families were expecting the researcher to visit, and they were welcoming Oberle by offering food in their very welcoming island way-of-life. They sent their sons and husbands to accompany her to the next house in which they knew of a family with children eligible for the research project, and gave suggestions about where to find more families with young children in neighbour villages.

Organising a research schedule on Fais Island turned out to be much easier because the chief as an authority figure on the island had taken responsibility for encouraging families with children to participate in Oberle's project. The chief as well as family members on Fais had been contacted by Jonathan before Oberle started her trip on the *Micro Spirit*; Jonathan contacted his relatives via a radio receiving set to announce Oberle as a visitor "sent in his name" and asked them to please assist with her research project. After arriving on Fais, Oberle first met with the island's chief to bring him a gift to show appreciation for being welcomed on the island. Other than on Yap Island, the chief on Fais Island still is an official authority figure nowadays who holds a high status among the islanders. He took the presented research plans very seriously and immediately set up a schedule for all the different families on the island with children between the ages three and five. This schedule was published in front of the island's church so that everyone could see what

days they were expected to participate in the research. Today, the approximately 200 people who live on Fais Island reside in three villages built by the water. The chief assigned three male research assistants to assist with the experiments, one per village. Each of the assistants knew the children and families in his village very well since he was biologically related to most of them. On both islands, it initially took two weeks to get to know the children and their families and to plan the implementation of the experimental research. The research assistants were familiarised with the experimental paradigm to prepare the translation into the island's native tongues Yapese and Ulithian (with a Fais dialect).

A short history of Yap State

Micronesia encompasses three great island archipelagos known as the Mariana Islands, the Caroline Islands and the Marshall Islands and is composed of thousands of volcanic islands, atolls and coral islands. Despite genetic similarities in the population, a huge diversity of languages and cultural practices exists in Micronesia. Yap state is situated in Western Micronesia, between Guam and Palau.



Map 4.1: The Micronesia Islands (source: Sudo 1996, © Australian National University)

Together Chuuk, Kosrae, Pohnpei, and Yap state form the Federated States of Micronesia. Yap is said to be the most traditional state of the Carolines. The main island of Yap state is called Yap Proper. Ulithi, Fais, Sorol, Woleai, Ifaluk, Faraulep and Lamotrek belong to the group of fourteen Outer Islands of Yap state, settled by Carolinians. The Outer Islands are spread to the east and south of Yap proper, some of them being up to 800 km away from the main island.

The main island of Yap and the outer island of Fais differ profoundly – both linguistically and culturally. Even though the two islands are only 250 km apart from each other, both islands have their own language, traditions and cultural practices due to different settlement histories. Yap and the high islands of Palau and the Marianas were settled approximately 3500 B.C. directly from Indonesia whereas the western Caroline Islands were settled in the first century A.C. from the east (Rubinstein 1979). Today, Yap Island consists of ten municipalities (Lingenfelter 1975), of which Ruuq village is of special significance for the relationship between Yap Islanders and the Outer Islanders of Fais. Ruuq village was given to the people of Fais in the late 1990s and has become the home and location of cultural practices of a large Fais community in the last few years. Long before European influence in the Pacific, the Outer Islands were already dominated by the Yapese politically and militarily (Lingenfelter 1975). Today in Yapese culture, the Outer Islanders are still seen as inferior and there are a large number of cultural rules for interactions between the two cultural groups. Outer Islanders from different islands have been given pieces of land on the main island where nowadays a substantial number live in their own island specific communities.

The historic inter-island-connection between Yap and Fais Island is called the *sawei*. It is described as a bicultural system of tribute offerings, gift exchange and disaster relief, which secures a good relationship between Main Islanders and Outer Islanders of Yap State (Hunter-Anderson and Zan 1990). The *sawei* has prehistoric roots and was practiced until it was stopped by the German administration. Even though the yearly *sawei* travellings with canoe-fleets from the Outer Islands to the village of Gagil on Yap does not take place anymore, the actual *sawei* connections do still exist on an individual base or an island base. One example is the transaction of the village Ruuq, which was given to the Fais Islanders by their Yapese *saweis* through a traditional *sawei* transaction. Ruuq became and still is a place of visions and hopes and new

identities, a place where islanders from Fais can build their houses and live together as a community on Yap Proper. It is also a place where modern and traditional lifestyles come together, since living on Yap opens the opportunity to go to high school or apply for a job in Colonia.

Despite their strong and unique cultural traditions, the living worlds of the two islands have rapidly changed during the past century due to colonisation and the new opportunities (i.e., employment) provided by the Western world. For example, a small number of individuals from both islands has studied in the Uniuted States or in other Western countries and returned to their island to work for the government or in other jobs. This step provides individuals with different impressions and ideas about the world, and also impacts their participation in culture and tradition. It stimulates a shift in education and cultural exposure, and has a large impact on island society. Furthermore, the fact that both islands are politically tied together today has resulted in one third of the Fais population holding a permanent residence on Yap because their children attend a high school on the main island or their parents are employed on Yap Island. Travelling between the two islands has thus become easier, and the linguistic barrier has been minimised because many islanders speak English fluently. Recent research on Yap highlights a cultural change on Yap in particular. As Jason Throop wrote: "Yap at the time of my fieldwork was thus as much about money, computers, TV's, VCRs, video games, movies, and top-forty music as it was about taro patches, gardens, fishing, canoes, rafts, betel-nut chewing, magic, ancestral spirits and local medicine (…)." (Throop 2010: 32). Yap thus has two co-existing spheres: The traditional versus the modern world, geographically visible through the village life versus life in the capital Colonia.

Life on Yap Island

Yap is well known for its difficult to access and rather isolated villages in which visitors from outside the island and from other castes are not necessarily welcome. This contrasts to the social climate of Colonia where Yapese and Outer Islanders work and socialise with each other frequently irrespective of their caste. It is also in Colonia where one can find many families based on marriages between Yapese and Outer Islanders. Traditionally, inter-island marriages were not accepted on Yap island; Yapese were not allowed to marry Outer Islanders because they are considered to be of lower caste (Lingenfelter 1975). In contrast to the

villages, Colonia appears to be a more Western place than the rest of the island. Here, Outer Islanders are often seen without their traditional dress and younger islanders from low and high caste backgrounds socialise and mingle. The cultural change on Yap Island is also displayed in the recent practice that pieces of land are given permanently by the Yapese to the Outer Islanders. This is a strong gesture because in Yapese culture, land is tied to the family and can traditionally only be passed on within the family.

Yapese are often portrayed as conservative and rule driven, holding on tightly to cultural traditions. However, as Throop (2010: 31) states,

> (…) Yapese 'resistance to change' was never simply resistance or conservatism as such. It was more accurately a reflection of the valuation of carefully assessing ideas, goals, values, and technologies, whether introduced from within or outside of Yapese communities.

Concerning the relevance of Yapese culture in ToM research, we need to consider that the cultural environment has changed over the past decades compared to classical descriptions of Yap provided by researchers such as Schneider (1949), Lessa (1950), Lingenfelter (1971), and Labby (1972). Yap Island has become more open toward outsiders, other villagers and the Outer Islanders, a development that defines children's environment of different mind-sets, cultural habits, language, and thought.

Understanding ToM development on Yap Island, it is of importance that Yap has a caste system with two main alliances, the Banpagael and Banpilung. All villages are ranked within this system and belong to either one of those two alliances. Traditionally, people from a lower caste are not supposed to eat with, marry, or even approach to talk to people from a higher caste, and are thus seen as subordinate people on the island. According to Lingenfelder (1975), the village is the most important single unit in Yap-wide politics. Villages are ranked in relation to each other and further more, they are divided into sections that are also ranked and allied. The ranking defines a hierarchy of dominant/subordinate relationships with inherent reciprocal obligations, which in turn create the series of mutual exchanges and alliances of the political structure of Yap. Traditionally and until today, the basic units of this flexible political structure are "the three pillars" (*delipi ngcol*), defined as three centers of power on Yap Island. Lingenfelder (1975) interpreted all the wars on

Yap as a tool to balance the power on Yap and to ensure that none of the power centers becomes too strong.

This hierarchical environment is relevant considering the development of social understanding. From a young age on, children learn to understand the status of other people within and outside of the village, and how different people are to be treated according to cultural rules. For example, it is important for a Yapese to know, with whom he/she can share knowledge and what obligations and rights he/she has in contact to another villager or outsider.

Last, Resch reports a strong tradition of mind reading on Yapese culture. Based on his fieldwork experience, being asked a question by a Yapese person always implies scanning the other's mind and anticipating "what could he/she have in mind with that question?" The answer is often linked to the perception of the other's intention as well as to his/her rank. Conversations therefore require a high degree of sensitivity for other people as well as detailed cultural knowledge. This is a skill that is learned informally through the environment and culture in which children are immersed on Yap Island. This is of importance for ToM development because as Wassmann and colleagues state "(…) building on ToM capacities, an individual does not even have to observe the regularities leading to certain concepts itself. He can learn from the experience of others" (Wassmann et al. 2011: 50-51).

The concept of education

Resch conducted several interviews about the Yapese education system with a male informant and several village chiefs on Yap Proper. Yapese people report five phases of education in their culture. Not all phases include boys' and girls' education equally. The first phase, *tamror*, starts at the infant's birth. *Tamror* literarily means "the fire that you make for your father". It expresses education and knowledge about the family and home. *Kabil*, the second institution, begins when boys are wearing *thu* at the age of four. This is the time when children are becoming more independent, and they are encouraged to think and make own decisions. During this time, parents and other family members play games with them such as *kabil*, an ancient strategic game played with stones or shells, requiring analytic skills and decision making. The third phase, *toyec*, literally means "if the sun is going down and you give your fish-catch to your father". This is a time when the elders start talking, and

when women come back from gardening and give food to their mothers. It marks a phase comparable to early adolescence beginning between 13-15 years of age. While boys are involved in fishing with their brothers, fathers and uncles, girls are going to the garden with their sisters, mothers and aunts to harvest taro, manioc, bananas and other local food. This is when young people learn about kinship ties, fishing-spots, land rights, cultural rules, and their family history. Whereas education has taken place mainly in the family circle for the first three phases, the *machyoch* takes place in the island's *faluw* (clubhouse). *Machyoch* literally means "to juggle", and it marks the period when the boys learn about love, making love, politics and war. It also takes place in the *faluw*. The last phase, *firachov* literally means "where is my nut?" and describes young men learning about building a canoe, open sea navigation, self-defence, traditional massage (*chamag*) and building houses. This knowledge is transferred by the older men to the younger ones, and it takes place in the *pebay* (men's house). Even though educational concepts have different names on Yap compared to Fais, Resch's observation was that concepts on both islands are very similar. Resch notes that the emphasis in education is on imitating what adults do, and exploring the world by themselves with older peers starting at the age of three to four. This forms a contrast to Western cultures in which normative explanations through the tool of language and words tend to be more dominant, and structured education is provided from early on.

The role of adoption and *runguy* in social understanding

On Yap just as on Fais Island, almost everyone is adopted by a family. Traditionally, there are two different ways of adoption: *pof* ("the plucking of a leaf") is when a far related couple or even a non-related couple asks for permission to adopt the child before he/she is born. *Cowiy* is when a child of a close relative is adopted, occurring before the child is born or after. This kind of adoption is less formal and not combined with any ceremonies. In comparison to Fais, where only one third of the adopted children move to the compound of their adoptive parents, almost every adopted child moves to his new parents' compound on Yap (Lingenfelter 1975: 36). Even nowadays the practice of adoption is still present. Although some children do not physically move to the compound of their adoptive parents anymore, Resch found that at least two-third of Yapese children are still moving to live with their adoptive

parents at some age. This early shift from one to another living world may impact the sensitivity of the perception of 'the other' and thus increase early social understanding as we find in ToM development.

A second important concept that could impact the development of ToM is the concept of *runguy* on Yap. The most adequate English translation for *runguy* is compassion or empathy. As Throop (2010: 51) notes, *runguy* cannot be understood without its pendant *gaafgow,* which can be translated as "suffering". Between *gaafgow* and *runguy* exists a dialectic relation, which means, that a suffering person *(gaafgow)* affects the suffering of another person *(runguy),* a relation –as we will see later – that also exists on Fais. Even though this concept refers to an emotional state rather than cognition, Resch proposes that a cultural environment in which a concept of 'taking care for others' is as dominant in every-day-life as in Yap, might have a positive affect in forming the ability of ToM in terms of perspective taking.

Life on Fais Island

Illustration 4.1: Fais Island

Whereas on Yap Proper, the villages are spread all over the island, the small population of Fais lives in only three villages on the southeast coast of the island. The villages Ylodow, Lecucuy and Faliow are situated next to each other. Even though a Fais islander can clearly separate them from each other through defined boundaries, an outsider perceives the villages rather as one big village given that it is hard to notice the border from one village to another.

The paramount chief of the islands resides in the middle village Lecucuy. Every village has a village chief as well as some little chiefs, assistants and workers.

Illustration 4.2: One of the Fais chiefs thatching the roof and doing women's work

The land in this context is the defining unit for the chief. The person born on this segment of land automatically inherits the chief status. Fais Islanders have the saying "the land is the chief, not the person". Although a society of rank and hierarchy is still formally existent through

the chief system, relationships between individuals and interactions in daily life can be described as egalitarian. The chiefs are part of the daily life in the community just like other islanders, going fishing and gardening for instance. Only during special events and particular cultural ceremonies, funerals or conflict situations, the special duties and obligations of the chiefs can be observed and he acts his power.

Even though formal hierarchical structures exist on Fais within the society, they are not as visible and practiced as they are on Yap. It is not uncommon to see a man carrying out a woman's task in an emergency situation when all hands are needed (e.g., Resch saw one of the village chiefs weaving palm tree leaves for the roof that had been broken during a heavy storm, an activity that is usually reserved for women only), symbolising a certain degree of flexibility in cultural rules.

It can be said that in general, even though Fais Islanders respect each other and authority, the islanders do not appear fearful of individuals with higher rank. Islanders seem to have a relaxed relationship with each other, and it is not uncommon to tell jokes and share funny stories about each other without resentment. The proximity of Fais people and their openness with each other relative to the Yapese becomes apparent in the geographical structure of the village. On Fais Island, the village boundaries are not noticeable to a foreign eye, whereas on Yap Island, individual houses as well as different villages are clearly separated from each other by dense bush and jungle. Resch found that children on Fais Island experience other islanders as part of their own identity to begin with. It is only later in development that they internalise the boundaries between villages and families. In comparison to the inclusive Fais culture, children on Yap Island are raised with the awareness of distinguishing strongly between self and other when it comes to other families and villagers.

Childhood on Fais

The compound (*bogota*) is defined by the piece of land where a child is born and raised, forming the primary living space of a young Fais Islander. Usually, women leave their compound after marriage and move to the compound of their husband. The *bogota* is where children take their first steps, learn their first words, begin gaining competencies, physical skills, and also learn about cultural rules and interactional patterns that constitute a successful negotiation of day-to-day social life.

(Rubinstein 1979). The significance of the *bogota* still holds up today, more than 30 years after Rubinstein's extensive fieldwork on Fais Island. A *bogota* usually consists of a group of two or three male descendents of a family who live together with their wives and children. Every *bogota* has a name, and most of them consist of a living house, a cooking house, and a storage house.

In this day of age, it is not uncommon for children, adolescents or adults to leave their *bogota* for a period of time or even for good. Better schooling on the main island of Yap and the opportunity for employment are promising factors for which many Fais Islanders move to Yap Island to live in the Fais village of Ruuq with their cultural traditions, and at the same time embracing the advantages of a bigger island with electricity, running water, and supermarkets. Still, most children of Fais are raised and educated on their island for at least the first five to six years. From early on, they participate in significant events like childbirths, marriages, dances and other ceremonies and learn about the daily activities of their culture.

Illustration 4.3: Children participating in a funeral ceremony

Work and play on Fais Island

Children are confronted with two opposed categories in an early stage: *yanga'anga* (work) and *kookomo* (play). "To work" is seen as a necessity of a functioning island society. To be an "assiduous worker" earns the individual respect and honour on Fais Island. Children grow up learning about those two categories from early on. For example, a child carving the top of a spear would consider himself as working since the spear will be used for fishing later. In contrast, a child collecting shells at the beach would consider this activity as play. Work can also mean bringing another person back to their house, showing the way to someone, or helping a relative to carry coconuts. From the age of six on, more and more responsibility is given to children followed by honour if they fulfil their tasks successfully. At the same time, parents often drop sarcastic comments when children after the age of six still spend the majority of time with mere play.

Cultural education on Fais Island

Learning about customs, taboos, obligations and duties in the culture of Fais is one of the main aims of traditional education. A typical time for children to be told about traditions, the history of their island, their relatives, and their village, is before they go to bed. It is common to see the elders of a *bogota* sitting together with the children then, telling them stories about the rules, the past and their ancestors. In local language, this practice is known as *habongal lifhaf*, literally meaning "to go to say good night". The time when *habongal lifhaf* takes place could be of relevance for ToM development, given that children begin to learn from other's stories, and hence understanding their life, experiences, and perspective. There are no ceremonial transitions from one stage to another in the development of a child. It is a gradual development that is accompanied by parents and other family members on the same *bogota.* Only very recently the *habongal lifhaf* tradition started disappearing due to the establishment of an elementary school as an official educational institution. The school system is modelled after a Western concept with donated schoolbooks from mostly the United States, and therefore results in a curriculum which does not necessarily foster cultural knowledge and traditional skills.

Another important concept in education is encouraging children to participate in adult activities from a very early stage on (see also Rubin-

stein 1979). This can be explained through a story Resch experienced during his fieldwork. One week before he was supposed to leave the island, his adoptive father started to carve a small canoe as a gift for him. It took him two days of intensive work and concentration to finish the canoe. His little son Sigam, three years old, was sitting next to him most of the time, watching him. Neither Sigam was talking to his father or asking any questions, nor did Salestine, the father, explain anything to his son. Days after the canoe was finished, Resch found Sigam behind the house, holding a piece of wood in his hand, carving with a stick that was supposed to be a carving knife. He was very concentrated, not recognising that he was being watched. Proudly he presented his "canoe" after he was finished with "work".

Illustration 4.4: Man on Fais carving a canoe, observed by his three- and five-year-old children

This story exemplifies that imitation is one of the basic educational concepts in early years of childhood on Fais. Early participation in the basic cultural practices of the adult world like weaving, carving, fishing and gardening teach children important life skills strategies through imitating and play. As Rubinstein (1979: 210) notes, Fais children's spend their own observance and attention to cultural patterns or in other words, "Children never learn by being told, they learn by asking on their own".

The concepts of *fago* and sharing on Fais

Similar to the concept of *runguy* on Yap, the concept of *fago* exists on the Outer Islands. *Fago* can be translated best as "compassion, love and sadness" (Lutz 1988: 119-121). *Fago* builds upon positive and caring relationships with other people, or in other words, a person in need automatically creates a feeling of *fago* in other persons. Hence, a suffering person activates *fago* in a nurturing person. Understanding and practicing *fago* requires understanding the other person's perspective, feelings, and needs in a given situation and can therefore be related to ToM development. It aligns with the information Resch gathered from one of his main informants who pointed out that "taking care of others" *(gamwela)* is one very essential cultural concept on all Outer Islands of Yap that is fostered from early on. It is maybe the first concept a newborn baby experiences since he or she is conceptualised as a person in need and treated in the same way. *Fago* or empathy may interplay with ToM development givent that ToM is also understood as comprehending others feelings, emotions and affections.

The concept of sharing forms another example for relational construction on Fais Island. As Rubinstein (1979: 69-71) formulated: "On Fais all things circulate". Traditionally personal or private property does not exist and goods are shared by circulating on the island. Even though cultural change had an impact on Fais culture, given that American goods like TV's, mobile phones, video games are available to a small number of families, it the concept of sharing is still active and part of the daily life circle. Similar to *fago*, the importance of sharing is an example for people on Fais being rather constructing their world relationally than individually. The individual is tightly connected to his/her community, which encourages sharing and communal possession.

After having introduced the two Micronesian cultures of interest for this chapter, we will return to the psychological concept of ToM, which forms the centre of this chapter and book. ToM development has already been introduced in Chapter 1 (Träuble et al.), and we will now proceed with a focus on cross cultural findings.

Theory of mind reasoning across cultures

The ToM – described as an everyday understanding of the mind which reflects a set of basic beliefs about others' minds and behaviours

(Premack and Woodruff 1978) – has been viewed as the foundation for adult-like understanding of the social world (e.g. Wellman 1990), as well as for the capacity for cultural learning (Tomasello et al. 1993). Considering the fundamentality of this theoretical assumption, the question arises whether all human beings develop and display a ToM in the same way and at the same time. If ToM is truly a basic skill necessary for understanding the social world it should develop independently of cultural influences. However, given that ToM is assumed to develop within the social and cultural context, it can also be considered that the expression of ToM varies across cultures. The aim of the present study was to investigate Micronesian children's development of a theory of mind. The data for this experimental study was collected from June to September 2006 on Yap Proper and Fais Island. The experimental tasks, materials, and procedures were taken from experiments in Western cultures and adjusted to the islands' cultures after a period of observation of children's play environment.

Throughout the literature of psychology, there runs a fundamental assumption that everyday, unschooled knowledge of human psychology is the same everywhere and can therefore be considered universal. Still, discussions on this topic remain controversial. Taking a nativist perspective such as Fodor's, the predisposition to explain human behaviour in terms of beliefs and desires is innate and can therefore be considered universal (Fodor 1987). At the same time, children grow up in different socio-cultural systems that form a framework for their early learning. Processing those experiences, they make use of their own cultural systems of analysis. In doing so, human beings in different cultures may develop different cognitive categories and patterns of thinking (Trommsdorff 1993; Lillard 1998). However, if an understanding of the mind is necessary for any kind of adult-like interaction as Wellman (1990) states, then the tasks that reflect those interactions should be solved similarly in different cultural milieus.

Understanding the concept of false beliefs has found to be the litmus marker of having a fully developed theory of the mind. A universal age transition during which children come to understand false beliefs could be biologically rooted, although evidence in support of such universality would leave open the question of whether culturally universal childhood experiences are necessary for such understanding (Callaghan et al. 2005). Most of the research in the field of children's cognitive development has been carried out with children from Western cultures, and even when

non-Western cultures are sampled, they are almost exclusively industrial societies with formal, universal education, sharing some important similarities with Western cultures. The sparse evidence from non-Western cultures is encouraging for claims of universality, although more evidence is needed to reach firm conclusions.

Vinden (1996) attempted to measure mental state reasoning in Quechua-speaking children in the highlands in Peru using a series of standard false belief tasks. The results showed that children between ages four to eight years performed poorly on all tasks (Vinden 1996). Either Junin Quechua children do not understand false belief even by the age of eight, or the task did not translate well into their culture. In a multicultural study with Mofu children from Cameroon, Tolai and Tainae children from Papua New Guinea, and a group of Western children living in Papua New Guinea, Vinden (1999) found that "culture" was a significant predictor of response to the test questions. Western children in the study seemed to follow the trend observed in previous studies (from a lack of understanding in early preschoolers to a complete understanding in late preschoolers) but they seemed to be a year behind Western children tested in their home countries. In Mofu and Tolai children, an improvement in performance on false belief questions could also be shown but a clear understanding first emerged at the age of six in schooled participants and not until ages seven to ten in unschooled children. Vinden (1999) suggests that we cannot be sure how children interpret the false belief task and that the use of language of thought has to be investigated in further detail in order to optimise cross-cultural studies on false belief. Vinden (2002) found that among the Mofu children in Cameroon, only 45% of the unschooled five-year-olds showed evidence for understanding false belief while 75% of the five-year-old school attendees did. Her overall results suggest that Mofu children do develop an understanding of mind, which is delayed by unknown factors relative to European and North American children's development. They show an increase in ability with increasing age. Schooled children performed successfully on the questions included in the test battery from the age of six on, while unschooled children were successful from the age of seven on.

Callaghan et al. (2005) investigated children's performance on the same, standard false belief task administered in Peru, India, Samoa, Thailand and Canada. Based on their findings, they suggested that the fundamental shift in understanding the impact of false belief on behaviour is a

universal milestone that occurs between ages three and five. Avis and Harris (1991) carried out a study on the understanding of false belief among non-schooled Baka children in southeast Cameroon. They found some competence in belief-desire reasoning in four- to five-year-old children but less in three-year-old children. Their findings are largely consistent with those found in Western countries. Wellman et al.'s meta-analysis (2001) also argues against the proposal that understanding of belief and false belief is the culture-specific product of socialisation. According to the authors, the mentalistic understanding of human beings that includes an understanding of their internal representations and beliefs is widespread and not culture-specific, although cultural differences may occur in the first onset of theory of mind reasoning.

In summary, the research results so far indicate a possible universal development of the theory of mind in children, although the bulk of the research has been with Western children. Even when non-Western children are sampled, they tend to be in large nation states, such as China, India, and Thailand. Research with children in non-Western, small-scale cultures has been sparse, and not always appropriately adjusted to the culture. In addition to the unique social structures and relationships that need to be considered when understanding ToM research in small non-Western cultures, such research may also hampered by translation difficulties, children's unfamiliarity with the experimental setting and other methodological challenges, which arise when conducting experiments in non-Western societies. The second part of this chapter will provide the reader with a detailed protocol of how ToM experiments were planned, adjusted and carried out on the islands Fais and Yap, and how the study results can be interpreted.

Experimental paradigm

To test children's false belief understanding, a surprise content task was presented to the three- to five-year-olds. Surprise content tasks consist of four basic questions which can be asked in different wordings, as open questions or forced choice questions. The order of questions used here was 1. belief question ("What do you think is inside?"), 2. reality question ("What is inside, after opening")?, 3. representational change question ("Before you had opened it what did you think was inside?") and 4. false belief question ("what would someone who has not looked inside think is inside?"). This experimental paradigm has been applied in numerous ways in Western cultures. Typically, three-year-old children

answer these questions based on their own beliefs. Once they find out what is inside the box, they cannot switch back their perspective to their former belief. Instead, they claim that they have always known what is inside. Accordingly, they cannot change from their own perspective to someone else's, thinking that the person entering the room knows what is inside the box even though it hasn't seen the content. Their judgment about what another person knows is usually based on what they themselves know. In contrast, five-year-old Western children have usually reached a developmental stage in which they understand that different people can hold different beliefs at the same time. Not only can they switch back and report what they though was inside before they opened the box (representational change), they can also understand that the person who has not seen the true content of the box would probably judge its content based on the appearance of the box (false belief). In a first step, it was necessary to adjust the research materials to Micronesian culture, by identifying objects that children at the ages three and five would be able to name and that are meaningful for them.

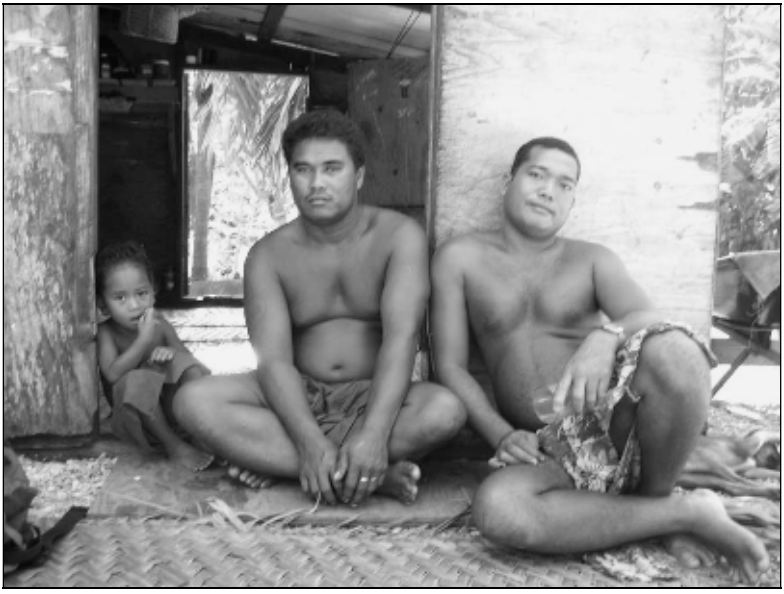


Illustration 4.5: Three-year-old research participant, father (middle) and research assistant on Fais Island

Culturally appropriate methodology

To adjust an experimental task like the surprise content task to a specific cultural setting, it is necessary to use culturally appropriate objects, to phrase the sentences in the children's native tongue with age appropriate words, and to create a setting in which the research participants (here young children) feel comfortable and safe. If participants are not feeling comfortable in the research environment, their experimental performance may not reflect their actual knowledge or ability.

Illustration 4.6: Participants (three and five years old) on Yap Island

Also, if age-inappropriate wording is chosen (e.g., by translating words literally from English into the foreign language), the unfamiliar vocabulary may cause impaired performance on the experiment. Therefore,

native speakers who spoke very good English, had profound knowledge about grammatical structures in their own language and in English language, and who had young children themselves helped translate the experiment into the local languages on both islands. Each of them translated the English wording into Yapese/Ulithian independently and were then given someone else's translation to translate it back into English. This process was necessary to ensure that the translations reflected the intended questions and did not give the children hints about what to answer. A few children were then chosen in an initial pilot study to test whether the children understood the experimental instructions and wording.

An initial two-week period of participant observation and unstructured interviews with parents was conducted to choose research material meaningful to children, and adjust the task to the cultural setting on Yap and Fais. Spending several days with children going around the island, playing with them at the beach, having meals with them and their families, Oberle witnessed the play and activities of children on both islands. This pre-study period not only served to choose appropriate materials to adjust the experiment, but also to get to know children and families on both islands and get accepted into their culture. Being present in the community served as a way to connect with the people and give them a chance to ask questions and get to know the researcher. Five-year olds on Yap and Fais Island are usually mature enough to accompany their older siblings or cousins on their tour around the village everyday. They are used to be separate from their mother and show a fair amount of independence spending the days in the bush with the older island children. Three-year olds in contrast usually spend the days with their mothers. On Fais Island, many children are still being breastfed at the age of three and show anxiety when taken away from their mothers for longer time periods. As a result, most five-year-old children did not show fear when they saw me (Eva Oberle) on the island. They were curious and full of excitement when I accompanied the group of children to their daily activities on the island, and they seemed comfortable and excited with experimental procedure. This was not the case with three-year-olds. The younger children often started crying immediately when they saw the researcher and many of them only participated in the experiment when sitting on their mother's lap. On Yap Island where villages are spread out over a larger area, each village had its own community of children and it was impossible to spend a longer amount of time in each village before

conducting the experiments. Here, even the five-year-olds sat on their mothers' lap when taking part in the experiment. This shows that researchers can neither expect to be provided with a single location which can be used as a "laboratory", nor can they expect to force an experimental procedure on the participants which equals the one in Western countries. Flexibility has to be shown when working with research assistants. On Yap and Fais Island, it was not culturally appropriate to have people from another village come to families' houses. On Fais Island, it was up to the chief to set up a research schedule, but not on Yap Island. On both islands, only men could be research assistants. Because children are not used to Westerners, all children on Yap Island had to take part in the experiment with their mother or older sibling. On Fais Island, I got to know all the five-year-olds during the two-week-long pre-study period and they were not anxious during the experiment.

Given that the two islands differ in their cultural objects and in the availability of certain products with which children are familiar, different material had to be chosen for Fais and Yapese children. On Yap Island, a package of chewing gum (*ching gum*) containing a betelnut (*buw*) was presented to the participants (see figure 4.1). On Fais Island, a shell (*liyo* or *hautch*) wrapped in candy paper (*suga*) was used (see figure 4.2).

On both islands, a culturally adjusted hand puppet was introduced in order to investigate the false belief understanding. The aim was that the children would initially represent the package as containing chewing gum (Yap Island) or candy (Fais Island) and then, after revelation, represent it as containing a betel nut (Yap Island) or a shell (Fais Island).

Research Procedure

A total of 71 Micronesian children completed the experiments on false belief understanding. Two children started crying and refused to complete the experiments. The further descriptions and analyses were done with the remaining 69 participants. The children's age ranged from three to six years. 30 three-year-old, two four-year-old, 35 five-year-old and two six-year-old children took part.

The mean age of all Micronesian participants was 4.13 years. On Yap Island, a total of 43 children participated: 17 three-year-old, 26 five-year-old. On Fais Island, 26 children took part: 15 three-year-old, and 11 five-year-old children. On Yap Island, the children's age was either reported by the parents, or noted in birth certificates if they were unsure about the

exact age. On Fais Island, the chief and the families provided information on the children's age. Only few children on Yap Island had attended a headstart program and all of them reported not to attend regularly. Therefore, the variable "education" therefore could not be included as a possible factor in the study.

Scene 1

"Before you opened it, what did you think was inside?"

Scene 2

"What is inside? What do you see?"

Scene 3

"Before you opened it, what did you think was inside?"

Scene 4

"This is my friend John. John has not seen what is inside. What do you think, what does John think is inside?"

Figure 4.1: Material used on Yap Island

The research questions were asked by the local assistants. In some cases, the parents had to speak the wording because some Yapese families did not want their children to participate if the local assistant was from another village. In order to make the children feel comfortable during the experiment, they were allowed to sit either on their parents' lap or next to them. All children were first approached with small talk about what their name was, if they knew who I was and where on the island I lived.

Children on both islands were unfamiliar with sitting still in an experiment. If the participating child was very nervous and impatient, they were told to stand up, go over to their mother/father, and tell the answer to the test question into her/his ear.

Scene 1

"What do you think is inside?"

Scene 2

"What is inside? What do you see?"

Scene 3

"Before you opened it, what did you think was inside?"

Scene 4

"This is my friend John. John has not seen what is inside. What do you think, what does John think is inside?"

Figure 4.2: Material used on Fais Island

Oberle first showed the objects to the child. The local speaker then took the object and asked the questions. If the child did not understand the question or displayed confusion, the research assistant repeated it. The experimental wording was spoken in a natural and playful way, since children in Micronesia are not familiar with experiments. Some of them did not want to talk at all and only looked at the researcher or the video camera instead, until the local speakers involved them in a very natural conversation about the presented objects. Most of the experiments were videotaped. Fais Island is without electricity and only energy from a

solar panel could be used for charging up the camera batteries. Since the research period happened to be during the rainy season, there were some days when the panel could not be used. On Yap Island, some parents preferred not to be videotaped.

Results

Two kinds of replies to the test questions were scored as indicator for existing/missing false belief understanding in children. Regarding the false belief question, children on Fais/Yap who stated that John thought there was a shell/ a betel nut inside the wrap paper/chewing gum package were scored as a failing in understanding false belief. The reply that John thinks that sugar/chewing gum is inside the package was scored as succeeding in understanding false belief. With regard to the representational change question, children on Fais/Yap who stated that in beginning, they thought the object contained a shell/a betel nut were scored as failing in representational change. Children who stated that before opening it, they thought it contained sugar/chewing gum were scored as succeeding in representational change.

We found that three-year-old children on Fais Island as well as on Yap Island did not demonstrate false belief understanding, whereas five-year-old children did. All children on Fais Island were misled by the candy wrap paper assuming that there is candy inside, and all Yapese children assumed to find chewing gum inside the chewing gum box. After opening it, the Fais children correctly identified the content as a shell, whereas the Yapese children correctly recognised the betel nut inside the package. Almost all three-year-old children on Fais Island stated that before opening, they knew already that a shell is inside the candy wrap paper. Similarly, the three-year-old Yapese children claimed that they had known about the betel nut inside before opening the chewing gum package. In contrast, the vast majority of five-year-olds on Fais Island correctly switched their perspective, saying that before they had thought a candy was in the wrap paper, whereas now they know there is a shell inside. The Yapese five-year-olds also answered the representative change question correctly by shifting their perspective to what they thought was the content before opening the chewing gum package. Again, in the final false belief question, three-year-olds on both islands could not change their perspective to those of “John” who had not

seen the actual content, and they claimed John would think a shell/betel nut is inside the container. In contrast, five-year-olds were able to take on John's perspective and reported that the puppet would falsely believe that candy/chewing gum is inside the wrap paper/chewing gum package. These results indicate that in Micronesian culture just as in Western cultures, an important cognitive shift takes place between ages three to five. For a detailed presentation of the research results, see Oberle (2009).

Discussion

This chapter presented the reader with a combination of qualitative and experimental research. By using the pre-study model, the emphasis of research was focused on results gained from experimental methods; however, the experiments themselves would never have been possible without an initial period of participant observation and interviews with parents. In addition, the perspective of Resch as a cultural anthropologist was necessary to understand the social and cultural practices that relate to ToM understanding in both cultures. Apart from answering the specific research question whether the pattern of ToM development seems similar or different to the one found in Western cultures, one goal of the study was to succeed in carrying out experimental research in a part of this world which is by no means familiar with laboratory research. Hence, the implementation of the described experiments on Fais and Yap Island itself can be seen as an experiment. The larger experiment of conducting experimental research turned out to be a success: Being supported as a researcher by the villagers and collecting "good" data of more than 70 children in total can certainly not be taken for granted. Comparing the procedures on Yap Island and on Fais Island, it becomes clear how steady research assistants facilitate the data collection and how valuable the chief and the research assistants are for getting in touch with the potentially researched families.

The second purpose, answering the research hypothesis of this study, was to look for evidence as to whether or not children in a non-Western cultural setting exhibit the same age-related understanding of false belief as children from Western countries do. Quantitative methods of experimental psychology to measure the understanding of false belief in children were combined with qualitative methods of cultural anthropology to

plan the research setting and choose appropriate material for the experimental tasks. The structural equivalence to the task used in experiments in Western cultures remained. As hypothesised from a psychological perspective, children on Fais and Yap Island in Micronesia displayed a pattern of developing false belief understanding similar to Western children.

The development reached from a complete lack of understanding in three-year-old Micronesians to a successful understanding of false belief and its impact on another subject's answer tendency in five-year-olds. These findings provide evidence for a change in understanding false belief investigated with a classical false belief paradigm consisting of a surprise content task. Unfortunately, no education variables could be included in the study, since only few children – all of them being Yapese – taking part in the experiments went to Head Start programs.

Even though Micronesia can clearly be described as a non-Western setting, we need to consider that it has been under European and now American influence for more than 100 years. Families still live a traditional island life on both islands, but one cannot ignore the impact that Western countries have had on both islands. Many American Peace Corps work in schools as teachers, the United States of America supports the Federated States of Micronesia financially and those who have jobs on the island of Yap have started to buy food from the supermarket in Colonia instead of going fishing and growing taro on their land in the bushes. However, all of the research on Yap Island was done in the villages where life remains traditional, and on Fais Island, men and women to this day rely on fishing and gardening to feed their families. Cultural change and Americanisation may explain the similarity in the results on Yap Island to some degree, but given that Fais is still a remote island without electricity and money circulation, we can assume that the Fais sample was a good example for a non-Western culture that has also been little influenced by Westernisation than Yap. From an anthropological perspective, we can suggest that Yap and Fais culture have certain cultural concepts and traditions that encourage and facilitate the development of early social understanding. For instance the early importance of the concepts of *fago* (compassion, love for a person in need) on Fais Island and *runguy* (empathy) on Yap Island, as well as the importance of imitation in learning and the pronounced practice of sharing on Fais Island all contain practices that encourage taking perspective and understanding others' state of mind and feelings.

Overall, different studies on ToM understanding in non-Western cultures still lead to a wide spectrum of results: ranging from a large body of studies that support a universal development of ToM between the ages three and five reasoning to a respectable amount of studies showing a much later onset. From a perspective of cultural anthropology, researchers have argued that the different social practices, norms and interaction patterns with children can impact early ToM development. However, at the same time, technical difficulties make the interpretation of varying results problematic. For instance, one problem researchers often face in the field is the translation of ToM tasks into the local language of the cultural setting, and creating tasks that are meaningful for the participants. Words such as "thinking" and "believing" can often not be literally translated which can affect the results of a false belief experiment. Hence, as can be seen in Chapter 5 (Hölzel and Keck), it is important to include a non-verbal version of the experimental paradigm in addition to a verbal version. Such an experimental design allows to control for language biases at different ages, and take into consideration potential discrepancies between the verbal load children are exposed to in a specific culture, and the load that is presented throughout the experiment.

Furthermore, children's linguistic development across cultures differs in a way that the vocabulary of a three-year-old American child does not consist of the same words as the vocabulary of a child on Fais of the same age for instance. Furthermore, the results of experimental studies are always sensitive to "noise" of which a large amount is produced during fieldwork. Experiments implemented in fieldwork settings can hardly be as standardised as those in a university laboratory, another contributing factor to varying results.

In future research, ToM tasks first need to be carried out in different cultural settings on all continents. Furthermore, false belief understanding needs to be investigated with a battery of culturally adjusted tasks rather than one individual (cf. Chapter 2 Tietz and Völkel, Chapter 3 Mayer and Riese and Chapter 5 Hölzel and Keck). Experimental researchers need to collaborate with cultural anthropologists to ensure appropriate and culturally adjusted research methods and procedures. For example, tasks involving deceiving a person or concealing information cannot be applied to a cultural setting without considering the ethical and practical issues. Among Micronesians, for example, the concept of sharing is very fundamental in social settings and it characterises interactions

within the nuclear and extended family and deception is ethically not acceptable (cf. Chapter 3, Mayer and Riese on Samoa). Drawing a final conclusion, the interdisciplinary approach of combining both methods of cultural anthropology and experimental psychology to carry out experimental research in a non-western culture proved to be successful. The results of the study on false belief understanding in Micronesian preschoolers support the assumption of a shift in understanding false belief between ages three and five. They indicate that this shift is not culture-specific but seems to be a universal phenomenon. This study contributes to the larger effort to examine the origins of this remarkable capacity.

Notes

1. Parts of this chapter are an adapted version of a previously published manuscript (Oberle 2009).

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MIRJAM HÖLZEL AND VERENA KECK

5 Of Biscuits, Soap and Stones. Representational Change and False Belief Understanding among Yupno Children in Papua New Guinea

Background

This study[1] represents an interdisciplinary endeavour between psychologist Mirjam Hölzel and anthropologist Verena Keck. The village Gua in Papua New Guinea has been chosen for various reasons as a setting. Firstly, in the last twenty years, the anthropologist has stayed among the Yupno people and in this particular village seven times about two years altogether, thus she had become very familiar with the place and its people. Secondly, although it was not feasible to conduct this research contemporaneously, her acquaintance with the village allowed her, during her last visit in July/August 2007, to announce the psychologist's arrival in autumn 2007. Moreover, she could organise a host family and a local research assistant, Wilma Muape, a well-educated young woman, who had left school in her 10th grade. Within the overall project and the already conducted research in a Ramu village (cf. the following Chapter, von Poser and Ubl), the goal was to provide a separate set of data by organising a second research in Papua New Guinea, in a culturally and ecologically distinct place. Back in Germany, both the anthropologist and the psychologist discussed the psychological research design and agenda and all practicalities that needed to be considered for this stay in a remote village lasting several months. In addition, the psychologist had taken classes in Tok Pisin (Melanesian Pidgin English), the *lingua franca* in Papua New Guinea, and at the very beginning of October 2007 she started her research afield. Her stay in Gua would last for eleven weeks. Generally, the objective of this cooperation was to combine methods of both disciplines in order to find the most adequate way to test children and to find out more about the theory of mind (ToM) of children from

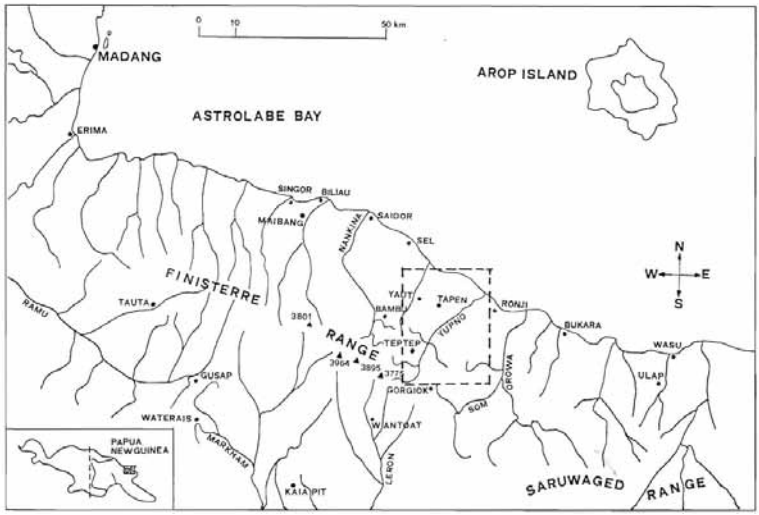
the Yupno region. Key aspects here are participant observation and semi-structured interviews.

However, even when games and materials had already been determined, the study was only implemented after the psychologist had the feeling of having built sufficient trust with the villagers, especially with the children. To that aim, she first tried to frequently be present and attempted to get in contact with people. This warm-up period seemed important, although she was not the first European reseacher[2] that arrived in the village. Younger children or those living a long way from the village centre, had less opportunities to meet people from outside and thus they were rather sceptical towards the new visitor. This is only one reason why it was so important to find a local research assistant for the experiments. Wilma Muape, the chosen co-worker was born in Gua, people know her; she enjoys an overall confidence and children are also well acquainted with her. She had been to the provincial capital, Madang, where she had recently finished high school. She speaks and writes – in addition to her native language Yupno (or, more precisely, a local dialect, *tokples* Gua) – both Tok Pisin and English considerably well. In the past, she had already collaborated with the anthropologists in Gua; by recruiting villagers as well as by translating for them, thus she was familiar with research routine. That is why it seemed to be a good choice to pick her as a reliable local assistant. Additionally, the assistant's sister could be won over to help prepare the materials (e.g. scoring sheets) and to translate them together with both experimenters. The assistant's sister attended school in Teptep and appeared to have an adequate knowledge in English, in Tok Pisin and in Yupno (*tokples* Gua). Therefore, both women were believed to trustworthily translate the wording into a culturally sensible text phrased in everyday language.

Ethnographic setting

The Yupno people inhabit a steep mountain region in the eastern Finisterre Range of Papua New Guinea, right at the border of the Madang and Morobe provinces. The Upper Yupno live in fourteen villages at a height of 1600 to 2200 m, and they form the largest part of the population, with approximately 6000 people according to the census of 2000. Christianisation by the Lutheran Neuendettelsau Mission started in the 1930s, with increased efforts in the 1950s (Wassmann 1992).

Nevertheless, until the late 1970s only few influences, ideas or goods of the Western world reached their remote region (Keck 2005: 47-52). With the construction of a government station, a school, a small hospital and an airstrip in the early 1970s, the world of the Yupno has enlarged and their social space broadened as well: an increasing number of Yupno, mainly younger men, go to the towns, to Lae or Madang, in search of a higher education, looking for work and a "modern" urban lifestyle. They follow the pattern of circular mobility that is so typical of the migration into towns all over Papua New Guinea: living in town for some time, moving back to the village, then going back to town – people fluctuate.



Map 5.1: The Finisterre Range and the Yupno region

Most Yupno people live in a subsistence economy, they cultivate sweet potatoes and taros, bananas, sugar cane and various local and European vegetables (e.g. cabbages, onions, beans, tomatoes, leafy vegetables). Coffee and tobacco are also grown as cash crops. In the 1980s, the Lutheran Church initiated an income-generating agricultural development project to minimise migration into towns, and some farmers began to plant European vegetables and fruits such as broccoli, cauliflower, spring onions, silverbeet, capsicum, and strawberries. These products

were flown out to Lae and Madang where they were sold to supermarkets or to some of the hotels in Madang.

Mission efforts by the Lutheran Neuendettelsau Mission intensified again in the 1990s, and today the church has an important and influential position in the Yupno region; it has replaced many prior existing government institutions and has partly taken over their tasks, whether in education (the *tokples* schools, where local teachers give classes in the local language, that is, in the "talk of the place") or regarding transport: only MAF (Missionary Aviation Fellowship) airplanes fly regularly into Teptep. The church's sphere of influence also includes a series of jobs and positions in the village that have to be supported by the villagers and are also partly financed by them: amongst them are the pastor, *tokples skul* (school) teachers, church leaders as well as the youth group leader or circuit president. These people (among them a number originating from places outside the Yupno region) are, on an average, better educated and informed about events from outside. They form a solidary group of people that share values and orientations profoundly coined by Christian principles; most of them live in the centre of the village or close by. They put distinctively more emphasis on Western school education for their children than villagers that follow a more traditional way of life and who, as subsistence farmers, have rather limited means to pay school fees. The isolation of the Yupno region and the lack of possibilities to earn money in the region are mentioned by many Yupno as today's most pressing and interlinked problems. Information from outside slowly filters into the area, as there is no television and the few radios available are only occasionally turned on. Furthermore, only few copies of the newspaper reach Teptep and, after being read, are used as tobacco rolling paper. Digicel, a rapidly expanding mobile network that has been launched in Papua New Guinea in 2007, is not (yet) operated in the Yupno region.

But nevertheless, the impacts of global processes have not totally bypassed the Yupno region; the changes Yupno society underwent during the last twenty years and the transition of their local world can be compared to the experiences of many other peoples in Papua New Guinea (cf. Smith 2002): the cash economy of modern Papua New Guinea and individuals' need for money to be able to pay the school fees of the community school in Teptep and especially of secondary schools that are all situated outside the Yupno region. There is also a shortage of money to pay for everyday items such as soap, salt, rice, clothes and kerosene for the lamps. As a result, in Teptep, there are only two shops

left, which are offering a more than limited range of goods. Another topic that Yupno people frequently discuss (cf. Keck 1994) is the increasing individualisation of the community, the change in social relationships that had been hitherto defined by social structures and the embeddedness in different kin groups. This individualisation is understood as the reaction to the shortage of resources and land due to a growing population as well as the result of an ever increasing demand for generating cash to pay school fees and to modestly participate in a modern live with some consumer goods. Many people fear that this shift to an individualistic value orientation influenced by a Western capitalist model might lead to an emotional and social splitting of the community and the traditional solidarity and sociality (cf. Keesing 1996). Another observable threat to many Yupno village communities is a more recent and steadily widening divide between devout believers (closely and sometimes enthusiastically following a more recently developed fundamentalist Lutheran revival church) and the occasional, ostensible churchgoers (interpreting Christianity and the Lutheran belief more pragmatically and tolerantly).

Illustration 5.1: Upper Gua village

The Yupno people form an egalitarian society, organised in patrilineal clans and lineages, called *jalap* (entrance in a fence), a term referring to the traditional fenced-in small hamlets where lineages or clan members lived together. Two clans form a unit, called *ngapma ngapma* (*ngapma*: deep hole), which is a paired close relationship that has been established by a common mythical origin of its founder. Today, this *ngpama ngapma* relationship is crucial to the negotiation of the bride price or the distribution of land, in case of sickness and death but also to raise the school fees. In Gua, there are today ten clans (*jalaps*), ranging from large ones that have members in many lineages to very small ones that are represented by only one or two lineages or men.

Illustration 5.2: Inside a traditional house

Nowadays, most Yupno families are composed of parents and their children. Quite often adopted or foster children, unmarried female siblings, elderly or widowed grandparents or those needing care are also integrated in the household. Together, they all stay in the house which, in its prevalent, traditional form, is constructed as a frame of thin poles stuck in the ground and covered with a thick layer of *tiktik*-reed grass (cf. illustration 5.1, Upper Gua village). A small entrance leads to a small ante-room at ground level and a huge, dome-shaped main room, whose

floor is a plaited bamboo platform elevated about one meter above ground; in its middle an elongated fireplace is suspended. These village houses are where sociality takes place. It is observable that, today, more people share a house than twenty-five years ago – possible explanations are the growth of population (due to an increasing birthrate and a longer life expectancy) and rising poverty. As a rule, the family members gather in their houses in the late afternoon, just before sunset, when everybody returns from their daily work and tasks (e.g. garden work, feeding pigs, building fences, visiting Teptep station for a minor task, going to school or just diversion). A fire is lit, and women start cooking dinner, the main dish of the day, consisting mostly of boiled or roasted sweet potatoes or taro, some corn or *pitpit* (a delicious wild sugar cane) and a soup prepared with different vegetables, cabbage, wild green leaves, pumpkin leaves, water cress, beans and other produce from the garden or the bush. On special occasions, people eat boiled rice and *tinpis* (tinned fish), mixed with vegetables and some dripping. Now is the time for the household members to sit down eating together, chatting, chewing betel nuts or smoking a cigar before they fall asleep (cf. illustration 5.2, inside a traditional house). The next morning, just before sunrise, they wake up and light the fire again, an observing visitor would notice shivering neighbours scurrying to the *liklik haus* (toilet) before hurrying back into the warm house. Soon smoke rises through the grass roof of Gua houses and indicates breakfast (consisting of warmed up leftovers or roasted sweet potatoes). As soon as the sun has risen over the mountain on the other side of the valley and reached the village, people will start to accomplish their daily routine. Women with babies tied on their back or asleep in the *bilum* (net bag), sometimes pulling a piglet on a rope and accompanied by smaller children go to the garden area (land that belongs to their husbands' clan, *jalap,* where families have small bush houses). Here, the women spend the day together with other women, most of them relatives, and their children. Men might go out and cut firewood, help build a house or a fence for a relative, visit relatives or other villagers to discuss community concerns and issues and prepare for upcoming events (e.g. a bride price) or to organise a kin group debate in case of sickness. Older children (who had to leave the village earlier) might go to the Teptep community school, about forty minutes' walk away, except on Sundays. There is a distinct division of labour in Yupno society, and gender roles are clearly defined. It is the woman who, as a rule, takes care of the smaller children and their needs, and who spends most of the

time with them in the garden (cf. illustration 5.3, Bainang surrounded by her children). Older siblings, too, are often obliged to look after their smaller sisters and brothers; to see a three-year-old stumbling carrying his one-year-old sibling and hardly mastering his weight and size is quite common in Gua.

Education is task-oriented, and children, from an early age on, learn all the necessary skills, such as lighting a fire with *bumbum* (a bundle of reed grass), feeding pigs or gardening. They learn the names of different tubers and leaves and edible wild plants, and start taking care of younger siblings.

Illustration 5.3: Bainang surrounded by her children

At the age of five or six, when the children are not yet going to school, they often form groups of children playing together. Young boys, for example, often imitate men's work, such as hunting birds or tree kangaroos; and spend many hours among themselves, roaming through the gardens or bush land of Gua. Small girls, however, often play near their mothers and relatives in the gardens and obviously practise above all women's tasks, e.g. making a *bilum* (net bag) or tying a bundle of *bumbum* together.

Fathers are not excluded from the education, but they are not as involved as their female equivalents. With the loss of the men's houses and giving up the male initiation rites in the 1950s, their role as fathers (who, with the partner clan, would have initiated the sons) has considerably altered. However, younger or older fathers may also be seen to fondly and proudly spend time with their sons and grandsons.

One of the key aspects of Yupno morality and personhood is the ideal of the socially integrated, slightly bent person, which is neither above nor below others, but in their midst, and many actions are directed to achieving this aim (Wassmann 1993, n.d.). Yupno theory of personhood consists of several parts. Apart from the body and far more important, an impersonal vital energy or inner strength (*tevantok*), there are two spiritual aspects, a breath spirit (*moñan*) and a shadow soul (*wopm),* leaving its owner during dreams and at death, that are inherent to everybody; their respective amount and status are crucially linked to the person's well-being, sickness or death (Keck 2005: 45-59). Equally important for the definition of personhood are social relationships and their quality. If these relationships do not "click" – on the interpersonal level or between two kin groups, if they are tense or conflict-laden, they might result in pathogenic "oppressing problems" and the persons involved might fall ill. The illness may not only afflict the actual "trouble maker", but any member of his kin group, and thus for the Yupno, an individual is not only responsible for his or her acts and its consequences but has also to take into account the repercussions for their relatives – a concept that clearly confirms the importance of a person's social embeddedness and social ties. These social relations are constantly confirmed in everyday life: all activities, whether garden work, erecting fences, cutting trees, hunting, eating the evening meals or just staying at home are undertaken in common. Being alone – for a Western person sometimes a desirable state – is a sad and pitiful condition in Yupno logic, which they eagerly change by providing company. During the life circle of an individual,

different kin groups try to establish and maintain unburdened and balanced relations with the others. To this aim, they bestow *ngopmo* gifts (*ngopmo*: my skin) consisting of pigs and money; occasions are abundant and begin with the bride price and marriage, followed by a gift to celebrate the birth of the first child, and – after various other events – finally end with a *ngopmo*-gift on the occasion of a person's death. This last gift is thought to allow the dead person's spirit to return peacefully and satisfied to its mother's kin group where the person's shadow soul (*wopm*) originally comes from and where the death spirit now shall return. Another aspect of personhood unique to Yupno culture is the *koñgap* (the voice of the ancestor spirit), a short melody for each person (cf. Ammann et al. 2013). The mother of a newborn child will invent and give the first melody to her baby, before the child will then invent or dream a melody of its own replacing the first one. Various rules need to be respected to allow for a culturally adequate use of the melody in everyday life. The most important ones state that you may never sing your own *koñgap* during daytime (with one exception during the traditional nightly dance feast, *nsaguo koñgap*), and that you have to sing the *koñgap* melody of the landowner while crossing his land to indicate that you are an insider and not an intruding enemy. *Koñgap* therefore is the musical expression of social relations and an acoustic representation of social embeddedness.

As described above, there are many indications to characterise the Yupno people as constituted through social relations, as partible persons (as it was described in the Melanesian Anthropology during the last twenty years, cf. Stewart and Strathern (2000), and for the latest overview Mosko (2010)). If Yupno people are to judge others, they put their behaviour above everything else. Besides, they are very reluctant to speculate about other people's feelings or thoughts – a quality they share with a number of other Pacific cultures, as various other studies show: cf. Lepowski (2011) for the Vanatinai Islanders in Papua New Guinea, Throop (2011) for Yap and Feinberg (2011) for Anuta, a Polynesian Outlier. Therefore, when asked to describe another person, Yupno people would consider his actual behaviour, but rarely would they make assertions about underlying intentions, motives or desires. And in all probability, an anthropologist wondering about the reason for a certain action would receive the answer: "I don't know, you have to ask him/her, he/she will know". Thus, it seems, the mind of others is a blackbox, an

opaque mind one cannot look inside. This assumption was an important point of departure for our investigation of the ToM in Gua.

A central, often felt and verbally expressed emotion is shame (*miyaga*), following the breach of culturally accepted behaviour roles and everyday cognition. This assertion is strengthened by a recent linguistic study undertaken in Nian, another upper Yupno village (Slotta n.d.): women who had married into a village with a different dialect would, even after having spent many years in the place of their husbands, stick to the dialect of their native village (their patrilect), for fear of making mistakes in the other dialect and afraid of feeling shame.

In addition to the components of personhood, Yupno ethnopsychology distinguishes between three states, hot (*temp*), cool (*yawuro*) and cold (*mbaak*) (Wassmann 1993, n.d.; Keck 2005: 59-62). Only the cool state, *yawuro* (also meaning slow, careful), is desirable: a cool person is healthy, socially fully integrated and neither above others as in the hot, *tepm,* state nor below others as in the cold, *mbaak,* state.

The ideal of a socially tied person, that entertains good and relaxed social relations, characterised by reciprocity, is also a goal of Yupno education. Children are deemed to be an almost completely developed person as soon as they are able to walk, talk and listen, to accomplish small tasks, such as carrying a small net bag (*bilum*) or a small bundle of firewood or bring some news to someone – an albeit small person capable of having social relations with other people. Children are then no longer called downy child (*monji naknak*), but *amin monji*, little man, or *sak monji*, little woman.

Yupno children are allowed to develop their own personalities and to pursue their own wishes and goals, but only as long as this does not harm others or conflicts with their plans. Emphasised individualism, independence or pronounced self-confidence are qualities whose development in their children Yupno parents disencourage.

If someone is disappointed or frustrated (e.g. after not having received the expected share of a pig during a bride price) open confrontation is no socially acceptable way of conflict solving – albeit this happens quite often. More refined methods of formulating intentions and interpreting others' motives are sharing and debating dreams – an important medium for the Yupno – and signs, *tauak*. The importance of dreams is such that, during nights, it is common to be aroused from sleep by someone who had a dream and who will now tell the others what he/she (his/her shadow soul, *wopm*) just experienced in the dream

(meeting other shadow souls). It is a medium, too, that allows to formulate sometimes uneasy truths (e.g. having discovered the spouse's infidelity). *Tauak* are signs interpreted as warning or heralds of an event. For instance, the bundle of certain leaves, a *tauak*, visibly placed in a tobacco garden, constitutes the implicit threat that the garden's owner is well aware who stole some of his tobacco plants.

Another way of solving controversies and sometimes illness-causing social conflicts and disputes are group discussions: in the evening, the different parties involved, other relatives and one or two village leaders or well-respected men, acting as moderating mediators, gather in a house and, sitting around the long fireplace, discuss various aspects and interpretations of a conflict. These debates may last several hours, and take place – apart from some emotional outbursts – in an impressingly unemotional, fair, calm style, allowing all participants to present their arguments before, ideally, being concluded by unanimous consent. The important aim is to rebalance the disturbed social harmony and to reintegrate the opponents into the community without a loss of face.

Yupno language has many different terms for various emotional states such as anger, rage, hatred, that are all considered to be hot, arrogant, potentially pathogenic and causing oppressing problems, *hevi's,* (*njigi*), that are caused by social tensions. These states are deemed important in interpersonal relationships and are thought to be localised either in the neck or in the belly. Identifying their cause in group discussions, and solving the problem by confession or compensation payments in order to remove the burden are a common Yupno practice for conflict solving. There are also – though markedly less – terms to describe positive states, such as *mbit kuak,* the belly is cold or *mbit kaloñ,* to be one belly.

Theoretical background of the Gua study

Primary motivation to conduct this study was, as already mentioned in the introductory part to this book, to investigate the pan-cultural pertinacity of the understanding of theory of mind concepts as it is advocated by many reseachers and theorists. Major theories in the domain assume a universal onset and ontogeny of the core concepts of theory of mind at least in early childhood, since, at this time, experiental factors may be very similar across cultures (cf. Chapter 1, Träuble et al.). This research is challenging children's understanding of representational

change and false belief further afield compared to most contemporary research which has been primarily conducted in Western countries like Australia, Europe or North America. Indeed, the few previous studies of anthropologists and psychologists conducted in Papua New Guinea did not really give a definite answer regarding a theory of mind's cross-cultural existence (e.g. Mayer 1982; Ochs and Schieffelin 1984; McCormick 1995; Vinden 1999; cf. the following Chapter 6 by von Poser and Ubl). Papua New Guinea is a multi-faceted nation above all expressed by the coexistence of several hundreds of different cultures altogether speaking more than 820 languages. This is one of the reasons why it was decided to conduct a study in Gua.

Accordingly, this study was designed to find out whether and if so, when children, growing up within a sociocultural system differing from our own culture in multiple aspects (e.g. concerning industrialisation, literacy, institutional upbringing, concepts of personhood), understand that action may be due to a (false) belief. Of course, this question could not fully be answered without asking for the extent to which the traditional paradigms are applicable in Gua. It was assumed that differences in previous cross-cultural studies partly resulted from method biases (e.g. insufficient control for individual difference variables, deficient translation, inadequate tests) that might have caused biases in results; our intention was to eliminate methodological artefacts or reduce them as best as possible and this would allow us to conclude that any subsequently resulting differences could be explained by cultural distinctions. Hence, this study strived for a broader foundation of an understanding of the nature of an indigenous psychology in Gua. It combined both quantitative and qualitative methods to explore nature, role and significance of the understanding of two concepts, that is, of so-called representational change and false belief, that are, in Western folk psychology, related to the network of a theory of mind (e.g. Sodian and Thoermer 2006).

Previous research demonstrated the usage of knowledge that is related to theory of mind to increase with age. Hence, the variable age was included as a primary predictor in the analysis. Besides, several other factors focussing on the individual in its specific culture were added to this variable to find out whether or not they affect the incidence of representational change and false belief understanding of Yupno children. More precisely, the question was, whether the number of their siblings or children's specific language environment (see Chapter 1, Träuble et al.) had any influences on the development of their theory of mind. As

already outlined in Chapter 1, a growing number of Western studies had emphasised individual differences in theory of mind development (e.g. Repacholi and Slaughter 2003). In particular, Perner, Ruffman and colleagues (cf. Perner at al. 1994; Ruffmann et al. 1998) discuss the finding that the number of (older) siblings had a positive influence on theory of mind development in their studies. They assume that children's interaction with their siblings during pretend play or in conversations delivers them more insights into other people's minds. Following this argument, we would formulate the hypothesis that Yupno children, who interact constantly and more often in play with older children or are being overseen by elder siblings (see above), would demonstrate their competence earlier in tests than Yupno children who are less socially involved.

With regard to the second cultural difference variable that was investigated it has to be noted that Yupno children live in a multilingual environment where not only school does contribute to broadening their horizon by teaching them various languages,[3] but where their sociocultural context constantly leads to the encounter of different dialects and languages (Keck 2005: 19-20). There are always two adjoining villages sharing a dialect. These dialects differ gradually and travelling from the first pair of villages further to the third an inhabitant of the first will have difficulties to communicate with people from the third dialect group (Slotta n.d.), and the communication problems increase along with spatial distance. Researchers claim multilingualism to have positive effects (e.g. Grosjean 1992). For example, to explain their positive results regarding theory of mind tasks, bilingual children have been attributed increased inhibitory control and flexibility in social interaction. Furthermore, a person's bilingualism is said to imply a certain metalinguistic understanding. Children's alteration of their own speech in accordance with their realisation that another person does not speak the same language as themselves, is assumed to be closely linked to the knowledge that mental states may differ between persons. This skill further may help to understand the possible existence of dual representations of a single object and it fosters the selective control of linguistic processes while dealing with ambiguous problems, including contradictory representations as appearing in theory of mind tasks (e.g. Goetz 2003; Kovács 2009). We would expect that the same assumptions apply for the Yupno children.

A priori considerations also led to the choice of a nonverbal task for implementation in the village. Thereby it was attempted to avoid as much cultural variance as possible which otherwise might have falsified the study's data due to difficulties linked to translation (e.g. Lonner 1990). Moreover, some researchers also claim nonverbal tasks to generally be easier since they lack complex verbal communication and would require less executive function, or, more precisely, inhibitory control (e.g. Russell et al. 1994). In the end, a combination of two games, respectively, of several critical tasks (each of it requiring a differing amount of linguistic ability and executive function) appeared to be most adequate to explore children's mentalising abilities.

To summarise, this study led to another dataset of a non-Western group of residents in a completely different environment, leading to a procreative comparison of theory of mind concepts. Mentioned a priori considerations (e.g. the control of individual difference variables) were expected to help to explain potentially occurring differences in the understanding of theory of mind related concepts between members of Western cultures and Yupno people. This way, a more substantiated knowledge as to the influence of the cultural origin of participants was meant to be gained (cf. van de Vijver and Leung 1997). In accordance with existing theoretical considerations about the origin and the development of a theory of mind, a developmental trend similar to the one in Western cultures was expected. That is, older children were thought to perform better than younger participants, performance thus increasing with age from below or chance level to above chance level concerning the critical questions in all tasks chosen for this study. No prediction was made concerning a specific age from which on false belief understanding of oneself or another person would exist in Yupno children from Gua. This was impossible since there had been no preliminary study in the domain of theory of mind in their culture and previous research in Papua New Guinea had revealed inconsistent results (e.g. Mayer 1982; Vinden 2002; cf. Chapter 6 in this book).

Method

Participants

Implementation of the study started after a general information was launched. In this, the psychologist was supported by the local pastor.

However, recruitment was eventually carried out mostly by the local assistant, who knew best where families with young children lived. In the end, 47 children could be recruited for the experiments in the village (with a population of approx. 500 inhabitants). Of them, seven children were dropped from final statistical analysis as they (five of them) either only played a preliminary version of the games or as they (two out of seven) refused to play when sitting in front of the video camera and the experimenters. Remaining 40 children's age ranged from three years seven months to five years ten months; amongst them were five three-year-olds, thirteen four-year-olds, eleven five-year-olds and eleven six-year-olds. Exact details were established with the help of their health certificate (Baby Card, *bebi kat*). Distribution of sex was nearly balanced with 22 female and 18 male participants. One four-year-old and three six-year-old children were already attending preschool when the experiments were conducted.

Overall design of a testing session

Each child was tested with two different experiments. A testing session always consisted of two traditional Western, but adapted tasks: both a deceptive container game and a location change game to be described in more detail later (cf. Chapter 1) were chosen after a period of participant observation and semi-structured interviews. Testing took place at a veranda of a more modern house in Gua (i.e. a wooden house built upon tree trunks) which was covered with several curtains.

After a short reception and expression of their gratitude to people's willingness to participate, both experimenters asked some demographic questions to which both, the participating child and its company were invited to answer. As already mentioned, social life in Gua is dominated by a lack of soleness, so that it was attempted to contribute to participants' ease and comfort by allowing for the presence of at least one familiar person. By telling them that they would receive a biscuit in consequence of their participation in the study, the experimenters implanted further motivation in the children. After this period, which helped to become acquainted with each other, two games were played in a counterbalanced order (cf. illustration 5.4.)

The procedure implicated the instructions and questions in both games to be told twice – first in Tok Pisin and thereafter in the local language of the Yupno in Gua. On the one hand this proceeding depicted

a mnemonic help for the assistant who had expressed her incertitude given to the relatively untypical situation and the relatively high amount of information that had to be transmitted to the children. On the other hand the games appeared to be more inclusive as both experimenters were involved, instead of one of them just silently executing her tasks. This design rendered the situation less artificial, so that it also was expected to inspire more confidence to the children.

Regarding the location change task, the bilingual procedure proved to be more difficult due to the game's fixed course of events implicating the assistant's temporary absence during the different trials. Hence, the psychologist had to learn the crucial sentences in the local language in order to be able to pose the questions in *tokples* Gua. Participants' company already had been advised beforehand to help by repeating the accordant question in case the child did not understand the psychologist speaking the local language.[4]

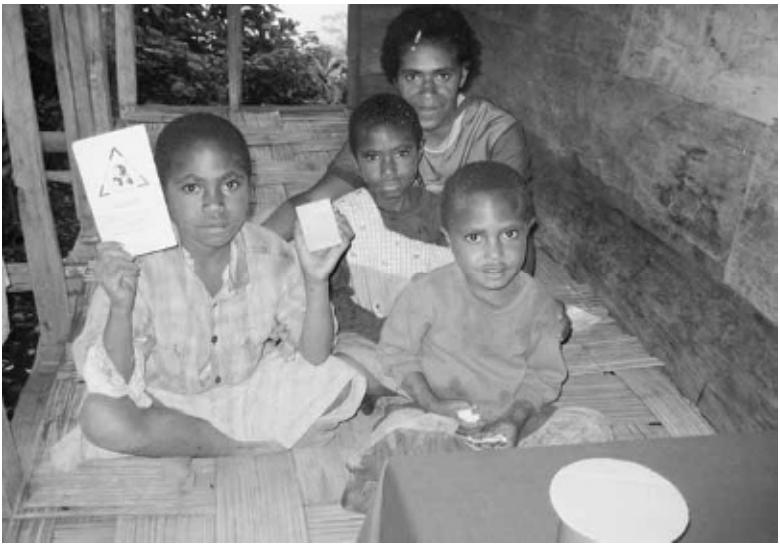


Illustration 5.4: After the testing session: Wilma, the field assistant, with children holding soap, *bebi kat* and biscuits

As an a priori version of the experiments already had demonstrated, mothers were keen in helping their children to find the target object. In the long run of testing sessions and as a result of interviews with resi-

dents of Gua, it became clear that they wanted their children not to be worse than the other players. In fact, they had been very motivated and ambitious in succeeding. Albeit experimenters had explicated that they could not talk to or help their child during testing unless requested, this advice did not always get through on companions. Actually, this order probably was very unusual, particularly, with respect to the Yupnos' sociocultural norm not to make somebody annoyed or sad. Especially, when participants came from a family, which was related to the assistant (e.g. as they belonged to the same or a partner clan), it was rather suggestive to refrain from criticising a child's company. The same goes for the almost constant background noises people produced while waiting. It was not possible to circumvent such distractions since closed rooms in Gua lack bigger windows. The inside of residents' houses in the village is rather dark, which was not suitable for a hiding-finding game, which was meant to be recorded partially with a video camera. Nevertheless, the improvised character of the experimental setting on top of the veranda fitted into everyday village life.

Documentation was accomplished in two ways: firstly, forms were filled in during testing sessions for each participant. Additionally, about 30 participants could be videotaped.

In the following the experimental designs of both tasks will be described, before illustrating each their results. After this explanation of both experiments their findings will be discussed.

The deceptive container task

Procedure and material of the deceptive container task

This experiment is comparable to the representational change paradigm described in the introduction (cf. Träuble et al. Chapter 1). After themselves deliberateley being misguided concerning the content of a familiar container, children are asked two crucial questions: with the so-called representational change question (i.e. self false belief question) they are asked about their prior belief concerning the content when the container was still closed. And with the so-called false belief question they are asked, what they think another child, that will come and play, will believe to be in the container.

For an implementation of a deceptive container task in the village, containers had to meet demands insofar as they had to raise certain expectations concerning their content. Bamboo cane and simple pots are

commonly used to cook food or heat water above the fire in the village, so that they were thought to evoke answers like greens (*kumu*), food (*kaikai*) or water (*wara*) when children would present their ideas concerning the content of these containers. The experimenters chose leafy vegetables, biscuits and soap as expected respectively unusual content of the containers. The weight of biscuits was similar to that of leaves which are usually cooked in the bamboo cane. The pot, which was filled with blocks of soap, could be moved noislessly and was about as heavy as if it contained water or the traditional meal of residents in Gua.

Accordingly, with this surprise content game the psychologist was able to test Yupno children's understanding of a change in their own belief from a false representation to a reality-accordant state, before investigating children's knowledge about the fact that another person's action may be based on a false belief also. The game itself consisted of two structurally equivalent conditions in a fixed order. Altogether, there were one control round and three crucial questions concerned with children's self and other false belief understanding.

Procedure in the first condition including the bamboo cane

The psychologist opened the bamboo cane, which originally contained leafy vegetables, and emptied it in front of the participating child's face. She then refilled the cane with biscuits before closing it again with some leaves the way it is traditionally done in Gua to prevent the food from falling out. After that, several questions were asked by the experimenters.[5] As already explained, the questions were first asked in Tok Pisin by the psychologist to be then repeated by the research assistant in *tokples* Gua.

Control question:

> "Before I opened this bamboo cane, when you were only looking at it, what did you think is inside? Did you think greens/biscuits are inside, or did you think biscuits/greens are inside?"
>
> Tok Pisin*:* "*Bipo mi bin opim dispela mambu, taim yu lukim em tasol, wanem yu bin tingting i stap insait? Yu bin tingting ol kumu/bisket i stap o yu bin tingting ol bisket/kumu i stap insait*?"
>
> *Tokples:* "*Mivil duk un kinam gan nilam da tong yang nandal? Gak jap yang nandal bo bisket gat jap tam gat yang nandal*?"

False belief question (fb1):

> "Another child will come and play with Wilma and me. This child has not seen this bamboo cane yet. When it just sees this bamboo cane, what will it think is inside? Will it think there are greens/biscuits inside, or will it think there are some biscuits/greens inside?"
>
> Tok Pisin*:* "*Na taim yumi pinisim olgeta pilai, narapela pikinini bai kamap na pilai wantaim mipela. Em i no bin lukim dispela mambu. Na taim em lukim dispela mambu tasol, wanem em bai tingting i stap insait? Em bai tingting ol bisket/kumu i stap o em bai tingting ol kumu/bisket i stap insait*?"
>
> *Tokples: "Wasang mudang pukaki, amun juk kanda ungban nit da on kanam gan niikam da tong yang endo niang yosak hoo? Kang on amun juk wong ban endo bisket yang yosak bo jap tam gat jap gat yang yosak*?"

Note, that the offer of answer possibilities in the forced choice questions (food, greens or water versus biscuits) was suggested in a random order. To give a correct answer to the control question, participants only had to remember their own former true belief, which most likely would have been different from their current true belief. It did not need an understanding of representational change or of the fact that oneself had had a false belief as there was no real surprise in this round. Children could witness how the psychologist changed the bamboo cane's content. Following Vinden (1996), the experimenters also asked a false belief question in the bamboo task. In the bamboo condition, children's responses were scored as a success when including the word food (*kaikai*), greens (*kumu*) or water (*wara*); whereas children were considered to have failed when answering with the word biscuit (*bisket*).

Procedure in the second condition including the pot

The psychologist showed a closed pot to the children which had been filled with blocks of soap before the child arrived. The child was invited to lift the pot in order to sense that there really was something inside. After that, the pot was opened, so that the child was able to see that it contained soap. Afterwards, the following pair of questions was asked.

Representational change question (rch):

> "Before I opened this pot, when you were only looking at it, what did you think is inside? Did you think there is food inside or did you think there is soap inside?"
>
> Tok Pisin*:* "*Bipo mi bin opim dispela pot, taim yu lukim em tasol, wanem yu bin tingting i stap insait? Yu bin tingting ol kaikai o wara o yu bin tingting ol sop*?"
>
> *Tokples:* "*Mivilduk on kuva gapmu pulat bisip mun. On kuva gan niikam da tong yang nandal? Gak saipe, pakbe yang nandal bo jap yang nandal*?"

Now the pot was closed again.

False belief question (fb2):

> "Another child will come and play with Wilma and me. This child has not seen this pot yet. When it just looks at this pot, what will it think is inside? Will it think there is food or water inside or will it think there is soap inside?"
>
> Tok Pisin*:* "*Na taim yumi pinisim olgeta pilai, narapela pikinini bai kamap na pilai wantaim mipela. Em no bin lukim dispela pot. Na taim em lukim dispela pot tasol, wanem em bai tingting i stap insait long pot? Em bai tingting ol sop o em bai tingting ol kaikai o wara i stap?"*
>
> *Tokples: "Wasang mudang pukaki amun juk kanda ungban nit da on kuva gan niikam da tong yang endo niang yosak hoo? Kang un amun juk wong ban endo pakbe. Saipe bo jap yang yusak*?"

Again, the position of the suggested contents (biscuits, greens, food or water versus soap) in the forced choice questions was arbitrarily changed. With respect to the representational change question children this time would be surprised to find soap in the pot and would therefore experience themselves a change from a false expectation to a true mental representation congruent to reality. Hence, to answer correctly to both critical questions, the understanding of false belief of oneself and others was necessary. In the pot condition the terms biscuits (*bisket*), greens (*kumu*), food (*kaikai*) and water (*wara*) were scored as a right answer;

whereas an answer that included the word soap (*sop*) was considered to be wrong.

(Non)verbal location change task

Procedure and material of the location change task

The procedure was nearly identical to the original design used by Call and Tomasello (1999) who first validated this slightly different false belief experiment. The verbal part of the game involved the prediction of another person's behaviour who was ignorant according to the change of location of a target object. Hence, this task may be seen against the background of the classic search paradigms of Wimmer and Perner (1983) and Baron-Cohen et al. (1985), already partly outlined at the beginning of this book. The nonverbal part required the participants to look for an object after referring to several observations made during the trials to be able to know where the target item was actually located. The location change experiment basically included the involvement of three persons: the "hider" (i.e. psychologist), the "communicator" (i.e. local assistant) and the child are playing the search game.

In contrast to mainstream research, experimenters had some difficulties to find appropriate containers needed to hide the target object. Whereas in Western societies, researchers frequently used cardboard boxes in this kind of location change tasks, comparable sealable and nontransparent containers are rare in the village and at the most can be found in the context of cooking. Nonetheless, it proved to be advantageous that, in Gua, many objects are "recycled" meaning that they may be provisorily assigned multiple purposes. Finally, two cups with handmade lids were chosen for the play along with a nice stone from the nearby Yupno river. The latter depicted the familiar and attractive natural object that participants would look for after it had been subjected to a change of location. Children often play with stones in the village. They constitute objects valued due to their origin from the riverbed of the Yupno where residents derive their name from. Leafy vegetables placed at the bottom of the cups prevented any noise to be heard when the stone would be hidden inside the cups. A chest separated the experimenters from participants. Figure 5.1 illustrates the situation.

At the beginning, children were introduced to materials and to their general duty, that is, to find out in which of the two cups the hider had put a stone. The position of the stone was alternated.

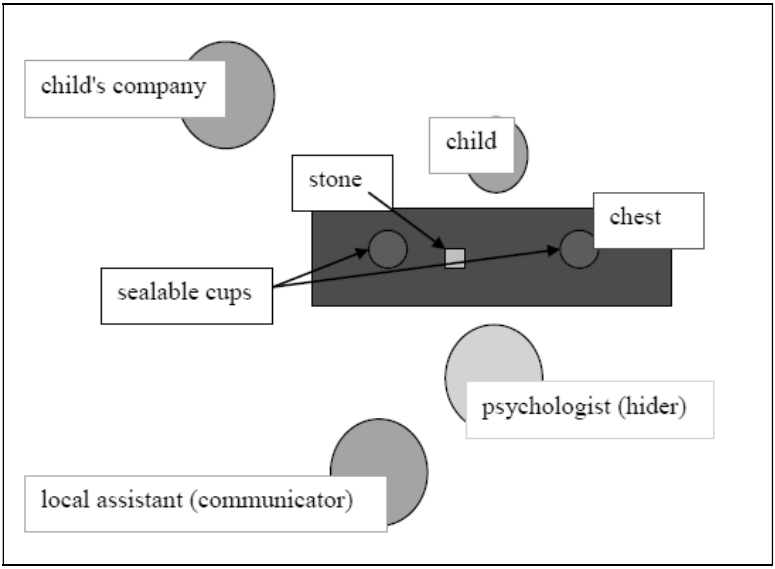


Figure 5.1. Schematic experimental setup during the location change task

> "I have got two cups and one nice stone from the Yupno river. I will hide this stone in one of the two cups. Please look for the stone and then indicate the accordant cup with your hand."
>
> Tok Pisin*:* "*Mi gat tupela kap na wanpela naispela ston bilong Yupno riva. Mi bai haitim dispela ston long wanpela kap na inap yu painim dispela ston plis, olsem na yu makim han long dispela kap*."
>
> *Tokples:* "*Pilai gakho bamuro don asokdakon un mivilduk wasangbe yombem gen. Nak (kapno) bo bakbe koleng nok no bamoro gan tup no wal quakquak ko si kanda wal yuno pakbe kon nasi kanda kap kanda kon sivil ipmat gakda tisi visiki*?"

A so-called pretest served to make participants understand this fundamental task, while also teaching them to look out for the pointing gesture of the local assistant. As the communicator was sitting behind the hider on a chair, she always was able to see where the psychologist put the stone; in contrast to the children, who "blindly" sat at the other side of the barrier. As part of the game, the communicator would try to help

them in finding the target object: Wilma would point at the side of the barrier where she saw the psychologist put the cup in which she had hidden the stone before.

Accordingly, instead of using a marker as in the original study, a cup was indicated by pointing at it. The two cups were situated on the opposed edges of the chest, so that the assistant's indicating gesture would be unambiguously interpreted when marking one or the other sided cup. Those children that had found the stone in three successive trials were assessed as having passed the task. After that, several control conditions were played consecutively to be then once more repeated. They all tested certain skills forming the basis to succeed in the following crucial tasks apart from having a false belief understanding. Children had to demonstrate such fundamental skills as the ability to follow the stone with their eyes while it was transferred from one position to another. In order to succeed in another control condition, participants had to understand the characteristics of invisible displacement and, thus, needed the knowledge of advanced object permanence**.** Furthermore, it once was important to ignore the help of the communicator, as the local assistant – due to her temporary absence, which was wilfully included in the procedure of the game – would be ignorant of the current position of the stone and, hence, could not point correctly. The general task in the control conditions (as well as in the later more elaborately described nonverbal false belief task) for the children was to look for the stone at the end of each trial:

> "Please look for the stone now."
>
> Tok Pisin*:* "*Inap yu painim ston nau plis*."
>
> *Tokples:* "*Tup zit. Visii*."

A true belief task was added to the above described control conditions of the original study. The true belief control condition once more implied the switch of the location of the stone in full view of the participants. Yet, this time the local assistant was also able to observe this transfer on the barrier after having seen the action of the hider behind the chest and before she momentarily left the scene. Above all, the true belief condition was included to examine linguistic issues more closely – particularly, as it was designed as the "true" counterpart of the below described

verbal false belief condition. Indeed, participants had to handle quite a complex (verbal) query in both these conditions, but only one of them depicted the crucial task to find out more about Yupno children's false belief understanding. This way, children's predictive capability regarding the communicator's future behaviour additionally was probed in a condition where this prediction simply had to be based on physical facts and almost appeared to be self-evident. However, the question in both (the true and the false belief) verbal tasks included several propositions and a reference to the future requiring children's sentence comprehension, working memory and verbal ability.

> "At which cup this woman will point first when she will come back? Please indicate."
>
> Tok Pisin*:* "*Dispela meri kam bai makim wanem kap tru/stret. Olsem na yu makim*."
>
> *Tokples:* "*Umun sakgok wung zit kap si nang suvosak yang do gak da sua*."

The sketched control conditions also served to get participants used to the communicator's recurrent absence as an important feature of the procedure that later in false belief trials would turn out to be crucial. Following Call and Tomasello (1999), control conditions generally were scored as passed, if the child succeeded in at least one of each of the two given trials of a certain control round. Only those children having passed each of the four control tasks were included in the final analysis. Afterwards, the critical verbal and nonverbal false belief conditions were likewise played twice and will now be described in more detail.

Like in all prior trials, the hider would be sitting behind the chest in the verbal false belief task. Observed by the communicator, she would put the stone into one of two cups, closed their lids and put them on the barrier showing them to the child. Thereupon, the communicator left the scene, thouroughly watched by the hider. Once the research assistant had vanished behind the curtain, the hider opened both cups and visibly transferred the stone from one cup to another. Then the hider asked the child at which cup the communicator would point first when she would come back (exact wording as written above)? This resembles the traditional action prediction question derived from previous studies (e.g.

Clements and Perner 1994), with the additional inclusion of a temporal marker (Call and Tomasello 1999). As described in the general course of a testing session, the question either was posed in the local language (mostly) or in Tok Pisin (rarely), depending on previously gained knowledge of children's linguistic capability. This location change task required both an understanding of the possibility that another person has a false belief and the crucial consequences of this person's state of mind. If participants already understood false belief of others they should be able to reply that the research assistant, Wilma, would point at the empty cup. This way, they would prove their understanding, that the communicator's absence during the transfer of the stone would lead to her ignorance and, hence, to false marking. Depending on the number of correct answers in the two consecutive verbal false belief trials, the child received an accordant score of 0%, 50% or 100%. After the communicator had returned and "incorrectly" pointed at the cup where she had last seen the hider put the stone in, the child finally again was invited to find the stone – albeit this did not contribute to scoring anymore.

At the end of the location change experiment, the nonverbal false belief task was played two times. Here, the psychologist, Mirjam, also hid the stone behind the barrier in one of two cups, thus, again invisible for the child's eyes. She then put the sealed containers on top of the chest. After having been able to observe where the psychologist hid the stone, the communicator abandoned the two. When the hider had ascertained herself that the communicator was not able to watch anymore, she exchanged the two cups on the shelf. Thereby, she automatically changed the position of the stone. Actually, until now, children could not know where the stone was located. The local assistant returned and inevitably pointed at the cup without the stone as she had not been able to observe the exchange of cups and of course trusted her memory concerning the original position of the stone at the time before she left. After having been invited to find the stone (exact wording of the invitation as written above), participants could prove their false belief understanding by staying aware of the fact that the communicator had not seen the exchange of the cups as well as by reminding themselves of the skills they had already demonstrated in the control condition of invisible displacement. A score of either 0%, 50% or 100% reflected children's performance.

Within the scope of this book, we both, the psychologist and the anthropologist, want to present and discuss only those aspects of the

study's results we consider being of most relevance. Accordingly, there will be depicted only a range of findings in the following – chosen by the authors. The interested reader is referred to the according diploma thesis, which is describing issues more elaborately (Hölzel 2009).

Results

18 three- and four-year old children as well as 22 five- and six-year-olds were combined into two groups, with the first group having a mean age of 3.72 years (range = 15 months) and the second one being 5.50 years old on an average (range = 21 months). An age split at 60 months seemed to be justified, when referring to literature and results of other studies. Previous research points at an increasing understanding of children in preschool years (e.g. Wellman et al. 2001).

Results of the deceptive container task

To summarise results of the deceptive container task, there was only one marginal effect being consistent with our priori expectations described above. When investigating the data, the inclusion of one dependent variable, that is, of the false belief question of the bamboo condition (i.e. fb1), brought to light a result in line with the hypothesis that children's performance would improve with age. With respect to this task, older children tendentiously performed better. Besides, the play with the surprising content revealed inconsistent results. Whereas children appeared to have a false belief understanding in one trial, results in both other crucial tasks put such an understanding into question. Additionally falling short of our expectations, individual difference variables (i.e. number of siblings, language environment) did not contribute to performances. A challenge for both, the anthropologist and the psychologist, to later discuss possible reasons and bring together what seems inconclusive.

At first different binary logistic regression models were used because they are more elaborate where statistical analyses are concerned. They either included age as a single possible predictor or additionally included above described individual difference variables. They were compared regarding their influence on the 40 children's performance in the three crucial self or other false belief questions (i.e. fb1, fb2, rch). As already mentioned, the regression analysis with fb1 as dependent variable and the

variable "age group" (which gave information about participants' membership in a particular age group) as single predictor revealed to be the only model of marginal significance ($p = .08$). However, the significant regression model with age group as predictor was attested a rather low explanatory capability according to the variance of fb1. Accomplishing a similar procedure with two more dependent variables stemming from the pot condition (i.e. rch, fb2), resulting statistical models did not allow to predict performances. The same accounted when including the individual difference variables into the different regression models; this way neither of the predictors became significant. Indeed, all other models never accomplished to predict more than 52.5% of children's performances (i.e. success or failure) which must be considered as equaling chance (in contrast to the significant model having an explanatory power of 62.5%). Hence, in further analyses all predictors except age group were discarded.

Of the 40 children only those participants, who had passed the control question were meant for inclusion in the further analysis concerning the surprise content task. Only six children of the first age group and ten older participants met this criterion. The capacity for remembering one's own former true belief, that was demanded to succeed in the control round, did not depend on children's membership in a certain age group.

Analysis of data of 16 remaining children suggested an age independence regarding children's responses to the three (self or other) false belief questions. Crosstables were used to get a general idea of the distribution of replies to both fb1 and fb2 as well as to rch.

Table 5.1 offers an overview of failures and successes within both age groups concerning these crucial questions. Note that performance depicted in the first column regarding the control condition refers to the original total of 40 children, but represented contents of all other columns were calculated with the data of only 16 children. Binomial tests suggested children's answers within age groups and regarding (nearly) all questions to be distributed randomly, that is, they had given an equal number of correct and wrong answers. But again, analysis concerning fb1 revealed an exception: the older children's number of correct and false responses to this false belief question differed significantly within their age group (binomial test, $p < .05$).

	Bamboo control condition		fb1		Pot rch		fb2	
Age group	-	+	-	+	-	+	-	+
3- to 4-year-olds	12 (67%)	6 (33%)	2 (33%)	4 (67%)	1 (17%)	5 (83%)	1 (17%)	5 (83%)
5- to 6-year-olds	12 (55%)	10 (46%)	1 (10%)	9 (90%)	5 (50%)	5 (50%)	3 (30%)	7 (70%)
Total number of children in analysis	40		16		16		16	

– did not demonstrate competence, + did demonstrate competence

Table 5.1. Yupno children's performance in the deceptive container task

Results of the location change task

All in all, Yupno children's performance in the control tasks only partly tallied with Western children's performances in the study of Call and Tomasello (1999). Moreover, findings according to both crucial false belief tasks remarkably differed from the original results: children's performance always remained below chance level in the critical verbal condition independent of their age. In contrast, in the nonverbal part of the location change game, older children tended to perform above chance level.

Details of children's performances in the pretest and the control rounds of the location change game are beyond the scope of this chapter. In short, all 40 participants passed the pretest and the visible displacement condition, whereas the three successive control tasks resulted in the drop-out of 14 children. In the following section we now will outline some of the findings concerning the false belief tasks in more detail.

After exclusions due to failure in control rounds of the location change game, 26 Yupno children remained for a further investigation of false belief understanding in Gua. Among those had been nine children belonging to the first age group of three- or four-year-olds and 17 children being five or six years. 17 children never managed to correctly

predict the assistant's action in the verbal false belief task (i.e. they had a score of 0%). In contrast, only four children completely failed the nonverbal task. Comparing younger children's performance in the verbal test to chance (i.e. 50% correct trials in a condition), a one-sample *t* test revealed a significant result ($t(8) = -4.0$, $p < .01$, two-tailed). Their performance remained below chance level, that is, they significantly failed to predict correctly at which cup the local assistant would point. Contrarily, another *t* test showed that the three- and four-year-olds selected the correct cup with the stone at chance level in the nonverbal task ($t(8) = 0.8$, $p = .45$, two-tailed). Another one-sample *t* test, used in order to analyse the second age group, likewise became significant ($t(16) = -3.92$, $p = .001$, two-tailed). Hence, it demonstrated that the older children predominantly performed below chance level in the verbal task, too.

However, the members of the second age group tended to accomplish to perform above chance level in the nonverbal task ($t(16) = 1.77$, $p = .096$, two-tailed). They predominantly succeeded in finding the stone in the two nonverbal trials of the location change game. Figure 5.2 illustrates these results.

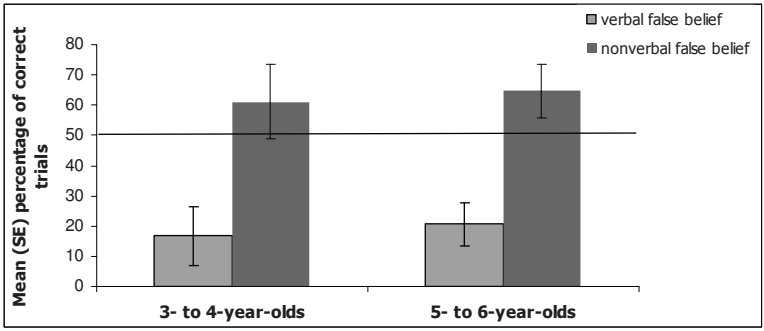


Figure 5.2: Children's performance in the critical false belief tasks of the location change game, compared to chance

In a next step, an analysis of variance with repeated measures was compared with another one which included individual difference variables as covariates in addition to the within-subject factor "critical task" and the between-subject factor "age group". Only the first model

showed a main effect of the kind (i.e. verbal vs. nonverbal) of false belief task ($F(1, 24) = 21.45$; $p < .001$). There was no effect of age and no interaction of variables. Investigating further, planned comparisons revealed the nonverbal task to be significantly easier than the verbal task for children of all ages. Once more crosstables were drawn up. Table 5.2 depicts Yupno children's performance across both critical location change tasks.

		Verbal false belief Percentage correct			
		0	50	100	Total
Nonverbal false belief Percentage correct	0	3	1	0	4
	50	7	3	1	11
	100	7	4	0	11
Total		17	8	1	26

Table 5.2: Yupno children's performance across the two critical location change tasks

The authors already mentioned that they will not go into detail about every aspect of the conducted analyses and their results, for instance aspects concerning results of the control rounds of the location change game. Nonetheless, one should recognise that carrying out all control rounds proved to be of paramount importance: an omission of these conditions most likely would have led to confounding factors and subsequent increase in failures could have been misinterpreted as a non-existing false belief understanding with Yupno children.

Discussion

The deceptive container task did not deliver consistent results. Whereas one could argue in favour of Yupno children's theory of mind when looking at their positive performance in the crucial trial of the bamboo condition, participants do not reveal similar competences in the following rounds of the pot condition. Indeed, this experiment generally raises doubts when considering both, the unexpectedly high number of 24 children who had not been able to correctly respond to the "easy" control question as well as demonstrated performances in the crucial false belief trials.

The location change experiment included both a critical verbal part, similar to traditional search tasks, as well as a new critical nonverbal part. When Call and Tomasello (1999) validated the latter, children's age-dependent performance did not differ from their performance in the usual, more verbal false belief paradigms, even though some researchers assume nonverbal tasks to require less linguistic ability and executive function (cf. Russell et al. 1994). Participants' success in either case was predicted by a similar age. However, the data from the current field study revealed that this correlation between participants' performance in the nonverbal and the verbal task did not exist in Gua. Both younger and older children did not manage to perform at or above chance level in the critical verbal false belief condition, whereas, in the nonverbal part, older children tendentiously achieved above chance level. Once more, findings seemed to be not conclusive with regards to Yupno children's false belief understanding. Or so it seemed.

Note again, that the nonverbal task was primarily included in this study in order to avoid linguistic method biases, which for example might have been caused by a deficient translation into the local language or by instructions constantly given in two languages. Nevertheless, the specific requirements of the crucial rounds in both games appear to deserve a second glance. To come to our major argument first, we think that the inclusion of a nonverbal task circumvented several confounding factors that had prevented Yupno children to reveal whether they knew about (possibly) differing mental states and resulting implications for people's actions. Essentially, false belief understanding might not have been the only key factor regarding participants' performance in the verbal tasks. We cannot exclude that the methods chosen hindered them from showing their underlying competences. On the other hand, the implementation of the verbal tasks afield presented comparatively more demands on participants than anticipated beforehand (Hölzel 2009).

Another unexpected finding that will be discussed in the following was the apparent non-effect of the theoretically derived individual difference variables (i.e. participants' number of siblings and their individual language environment).

First of all, we will have a closer look on what could have caused the inconsistent findings of the critical false belief tasks in both experiments. It may be important to consider explanatory factors linked to the way instructions and questions were communicated. These will probably help to explain the conflicting results regarding participants' false belief un-

derstanding: here, keywords are verbal load, verbal complexity, mental state talk, inhibitory control, as well as an infelicitous choice of material, comparable natural games and directive order. In the light of Yupno children's sociocultural background, these factors might constitute some major reasons, why 24 children even failed in the control question of the surprise content game, although this task, so we thought, only required the children to remember their own prior true belief.

Participants were confronted with a relative high amount of verbal phrases (i.e. verbal load), with the basic wording of the traditional paradigms increasing due to a procedural method that formulated each instruction in two languages. This abundance of information might have caused difficulties for their working memory – maybe partly since children are not usually talked to in detail (see also "verbal complexity"). The aspiration level of the bilingual tasks might have been set too high which impeded sentence comprehension and understanding since it might have been too hard for the children to decode the important message. Secondly, since part of the communication was presented in Tok Pisin (which is usually spoken by teachers), the testing session might have reminded them of certain school-related features although terms like "test" or "experiment" were avoided in the presence of participants. In this context, it is noteworthy that Gua villagers often referred to the psychologist as *meri bilong save* or *savemeri* (i.e. an educated and smart woman). Education is considered to be an important way to participate in economic development and to allow access to salaried jobs and is therefore highly valued by Yupno people. Consequently, children were probably under (implicit or explicit) pressure to fulfil their parents' expectations with respect to their performance in the games. Albeit the clear majority of children did not go to school at the time of the testing, certain aspects like obedience and industriousness were not unfamiliar to them since they grow up in a sociocultural environment that attaches a high significance to these characteristics. Parents' zeal and ambition to prove that their children are smart, might have weighed on the participants during the testing – similar to prevalent Yupno parents' expectations regarding their children's success in a usual school context.

But the chosen procedure of an instruction in two languages might not only have constituted an excessive demand with regard to participants' working memory and their coping faculties within a potentially stressful school-related situation. Additionally, it might have caused a general confusion about the expected language of their answers, *tokples*

Gua or Tok Pisin. This might have been another thought-provoking factor based on the verbal load that deterred children from answering immediately after a question and might represent the reason why they finally responded only hesitatingly.

Verbal complexity, for example due to entailed propositions in the questions, is included in many false belief experiments and poses a challenge for participants (cf. Call and Tomasello 1999). Yet, in this study, demands of instructions in both, the deceptive container task as well as in the verbal part of the location change task actually might have exceeded the simple ability to handle complex prepositions. As already explained, children were put into a rather unusual situation during the testing session. This particularly applies for the surprise content experiment and the verbal part of the location change game during which they were directly addressed and were expected to give a reasonable and explicit (verbal or behavioural) response. Small Yupno children usually do not face similar demands in the village. Yupno culture does not expect children (nor adults) to openly express their thoughts or point of views. They are "good" children when meeting demands such as obeying their parents and older siblings and fulfilling minor tasks while accompanying them in the garden or helping in the household. For instance, they are running errands for others, are told to fetch firewood or to carry their smaller siblings. As described in the section on the Yupno ethnographic background, it is then, when children, gradually and regardless of their age, reach the status of a (nearly) complete human being. From that point onwards, they will be held fully accountable for their actions according to the indigenous concept of a person. Only then are Yupno children's actions expected to correspond to the cultural norm of pleasing others instead of affronting them or offending sensibilities. Only then are they considered to be able to understand the link between their (ir)responsible behaviour and other people's reactions. But until then, residents' indigenous cognition (Berry 1988) does not seem to require an expression of their children's knowledge about different mental states and their behavioural consequences, especially not explicitly via a verbal statement. Consequently, most children hesitated to answer. Considering for example the control question of the deceptive container game or the verbal false belief task in the search game (that could also have been passed by the children via a correct behavioural response, that is a pointing gesture to the empty cup), it is evident that all these tasks included at least talk about a mental state or reference to its behavioural consequences and

goes beyond mere common interaction or communication with which children are more familiar. Albeit there is a mental state lexicon both in *tokples* Yupno and in Tok Pisin and people thus have means to express or to talk about mental states, emotions and open or hidden intentions,[6] such conversations are unusual and even more so with young children. According to studies of Dunn et al. (1991) as well as Meins et al. (2002), which revealed that the conversational style used by parents influences the development of children's mind-reading skills, this (partial) non-referring to mental states points out a cultural factor that could have impeded children's understanding in the tasks (cf. Träuble et al. Chapter 1). Our following reflections will address this issue in further detail from a Yupno perspective.

The verb *harim* in Tok Pisin, which was used in the questions of the games, both means "to hear", "listen", and "to understand". There are no separate terms to express these different meanings that, from a Western point of view, seem to be quite divergent. The accordant vernacular Yupno term for "to hear" is *nandak*. When referring to a "wise person", Gua villagers, such as Wilma, may use a doubling of this word and call him *nandak nandak amin*, which can be translated as "a person knowing many things as he/she has listened much and well". This may be linked to Mayer's (1982) statement suggesting that members of several traditional cultures in Papua New Guinea consider a person's knowledge, motives and intentions to be positioned inside the ears; hence no one else can know them, unless they are made explicit for the environment via verbal statements or behaviour. However, this does not exclude that the Yupno have an understanding of the core concepts of a theory of mind like false belief as demonstrated in the nonverbal trials. Their metarepresentational ability appears to exist although they do not explicitly talk about other people's thoughts as these are considered to be private. However, whereas results of this study underline that Yupno children are not used to talk about mental states and to express their related knowledge verbally, findings nevertheless suggest that this fact does not impede their false belief understanding per se. Nonetheless, the lack of an accordant amount of mental state talk may lead to a minor time lag: hence, that might be the reason why older children have succeeded only tendentiously above chance level in the nonverbal trials, in contrast to Western children, who usually succeeded already significantly beyond chance at this age.

Additionally, it is noteworthy to think about the reciprocal link be-

tween an individual's mind and the behavioural world in Gua. The Yupnos' emphasis on education is only one expression of the fact that they believe in one's own power to change one's state of knowledge (*kisim save long skul* = "to catch knowledge in school"). They also know that a certain behaviour may provoke a certain mental or emotional state in another person, albeit their clear emphasis lies on the emotional side. Individuals are considered to be responsible for their actions, which are expected to comply with cultural norms. More precisely, a person's behaviour results in certain mental and emotional states of his surrounding society. This means also that it has consequences for the quality of the person's relationships. The quality of relationships, in turn, has an impact on involved persons' well-being. The Yupno have an elaborate lexicon when it comes to describe how they feel. The Yupno concept of the person assumes that, if a person is in an ideal, cool position amidst others, he/she is in a good mood, has good relationships and his/her mind is working properly. Indeed, emotions are visible and elaborately talked about, they are openly expressed through mimics and words so that such a state can be evoked, known and handled. Moreover, people openly express their opinions and thoughts or talk about their dreams, as described in the ethnographic background section. They may debate mental states on special occasions such as in a case of illness. But being overtly emotionally expressive or extrovert would not at all correspond to the Yupno ideal of the slightly bent, socially integrated person. People are also curious to get to know the others' point of view, indicating their awareness of a mental world that is distinct from their own perspective and from physical surroundings. Yet, it is difficult to find out what the Yupno think about a third person's thoughts and motives, when they are not present to comment on them at that particular moment. As noted above, Yupno people would in this kind of situations probably respond "I do not know" (*mi no save*). If you would ask them for example why somebody was angrily scolding they might state "He is a quarrelsome man" (*em man bilong krosim*) thereby linking an overarching characteristic to a person's behaviour. For Wellman, the fact that a person's character forms the basis and structure for many specific individual beliefs, desires and emotions logically means that "traits figure prominently in causal explanations of actions" (1990: 114). This may interpreted as another sign indicating the presence of a theory of mind in Gua. Recently, Vinden and Astington (2000) have appealed for a cross-cultural investigation of the concept of personhood in psychology –

that is, of the culture-specific view of persons and those aspects that constitute a person (e.g. mind, body, soul; cf. Hobson 1993) – similarily to the anthropology of Melanesia and other regions where numerous studies already exist (e.g. White and Kirkpatrick 1985). An emic perspective would allow for a more precise look at people's explanation of behaviour and whether and in which form these explanations include concepts of mind. In conclusion of her study, Vinden (1996: 1716) encourages her fellow researchers to more generally investigate the extent "to which people [in other cultures] think of individuals as holding private, interpretable mental states". Generally, previous statements underline the assumption that in some cultures current events and reactions which can be observed or experienced may rank above thoughts inside people's heads with regard to their effects on behaviour (Vinden 1996: 1715; cf. Träuble et al. Chapter 1). Mental state talk may be less important and less interesting in an environment where each day follows the same subsistence routines and where the impact of the physical world is perceived as more influential. However, within the scope of this study, it can only be hypothesised whether mentalising is important in the village (e.g. to what extent the mental world is regarded to be a herald of behaviour) and to what extent Yupno children are asked to show their capacities related to these issues. The Yupno in fact may acknowledge the mental world to be a precursor of behaviour but may avoid to ascribe a definite motive or a certain desire to another person if he/she has not yet openly explained his/her thoughts and feelings.

A glance at a specific tradition in the village helps to further explore the notion of an indigenous theory of mind in Gua: as already mentioned, the set of sociocultural norms of the Yupno people prescribes pleasing fellow men instead of offending anybody. The practice of the bride price most clearly illustrates this behavioural codex. When a couple gets married in Gua, first the husband's clan and its partner-clan are asked to present gifts to the wife's family members (*añnok*). After a while, the latter will in turn give presents to the husband's family members (*pelok*). In case, one of the two parties feels disadvantaged, they will be aggrieved and get annoyed. Quite often, such (improper) exchange is discussed in endless and heated debates and also given as the cause of an oppressing problem, a *hevi* (heavy, *njigi*), such as an illness occurring in a particular kin group. In such a case, Yupno people ascribe bad intentions towards the clan whose members are accused of having deliberately caused the others' disappointment and anger (Keck 2005). This aware-

ness of the possibility to manipulate people's mood and their state of mind indeed presupposes some kind of operative theory of mind. Hence, when thinking about the indigenous psychology expressing the assumed core concepts of theory of mind, we might have to think of the villagers' bride price that is obviously used to manipulate and influence people's behaviour. Whereas talking about the motives and thoughts of others usually appears to be regarded as culturally inappropriate, this practice might allow them to deal with their knowledge of the mental world, that is, with concepts like intentions and belief, their expression in behaviour and future consequences. In accordance with concerns raised by Lonner (1990), a concept's manifestations (i.e. to display one's understanding of a concept) may differ from its Western form of appearance. The bride price is playing a cardinal role in Yupnos' everyday life and – through this tradition – competence in mentalising might also gain a distinctive role in Yupno culture. Accordingly, there might indeed be a theory of mind in Gua. Note, however, that a more elaborate emic investigation of residents' indigenous cognition would be necessary to find out in which context it becomes visible and which (additional) features distinguish the Yupno theory of mind from Western characteristics of common sense psychology. Particularly, it is impossible to tell exactly to what degree young children are already familiar with mentalising as for example needed for the bride price and to what extent they have to show competences as demanded for the study in their everyday life. As Lonner (1990: 60) emphasises, it is important to ascertain that the concept, which is studied and measured, "is understood on each culture's terms".

However, we would like to come back to the control trial in the deceptive container experiment. Here, children could watch how the greens were exchanged with the biscuits, which means that they additionally had to ignore their own gained knowledge in order to respond correctly to the control question. As there was no true surprise and though there was no representational change, the only challenge consisted thus, in referring to their former true belief (which should have changed in the meantime). However, considering that 24 out of 40 children did not succeed in this apparently easy task and bearing in mind generally inconsistent results, it again appears to be likely that there was a confounding cultural bias in the tasks, which was added to above listed problems of verbal load and complexity. The fact that, in Gua, a biscuit or piece of soap is something unusual or often unaffordable and therefore highly attractive might have played an especially decisive role for chil-

dren's performance in the deceptive container task is. Although such desirability was intended in order to encourage the children to participate and to compensate them for their efforts, the prospect of getting the biscuit might actually have influenced children's thinking. Their true capability of remembering their previous state of true belief might have been distorted by their inability to overcome the temptation and the appeal of an object not common in their village life. Along this line, regarding the representational change question (i.e. rch), three participants even stated that they had believed the pot to be filled with biscuits, indicating that some children could not take their mind off the biscuits. Furthermore, when considering each in contrast to the control question, children did not have to oppress their own prior true belief but their own prior false belief. This – as a matter of fact – is more difficult, but it probably was even more complicated: just as in the control condition of the surprise content task, in the eyes of the children, the soap might have been too attractive as it represented one of the luxury goods they seldom got hold of. Hence, they had to neglect their desire for this highly valued item in order to inhibit their own gained knowledge concerning the actual content at the time of the questioning and to give a correct response – and this requires inhibitory control (e.g. Leslie 1994; Russell et al. 1994; Samson et al. 2005). Children might also have been afraid of being rewarded with the object they had named in their answer, that is, with greens instead of with the highly desired biscuit. Therefore they preferred to respond incorrectly for fear they would otherwise be deprived of this reward. Both these explanations referring to an infelicitous choice of material appear to have had a chief influence on children's performance.

In the context of inhibiting one's self-perspective, in the verbal false belief task of the location change game, the correct answer regarding the assistant's future action conflicted with what the children knew about the real location of the stone. In order to make a correct judgment, children had (unlike in the true belief condition) to understand that action is based on a belief and not on reality; even if the belief of another person was wrong as it was the case in the testing situation. Hence, not only did the children have to take into consideration Wilma's ignorance but also they needed to understand that she could not possibly indicate the right location of the stone. An impressive number of 17 out of 26 children failed in both rounds of the verbal false belief task. This constitutes a striking error rate. In the current study, the inclusion of the true belief condition helped to exclude those children whose performance suffered most from

above described language related factors (i.e. verbal load and complexity along with sociocultural implications). However, this control condition did not check on Yupno children's skills in inhibitory control so that this feature of the verbal tasks seems to be especially crucial for the explanation why so many children failed.

Moreover, the psychologist faced another problem that frequently occurs in cross-cultural research: as a side effect of studying afield, the small sample (i.e. 40 children participating) does not satisfy the requirements needed to be optimally evaluated. Furthermore, in addition to the fact that small samples run the risk of overlooking an actually existing effect (e.g. a time lag, an age difference), it is very likely that there had been complex difficulties in the verbal tasks, above all caused by an insufficient material adaptation in the deceptive container task and an unusual testing situation, which prevented children from properly demonstrating their capabilites. Overall, the character of the verbal paradigms made it impossible to better translate them into Yupno's cultural experience and this infelicity might have chiefly affected children's demonstration of their underlying competence.

Compared to the verbal false belief trials, a notably higher number of children succeeded in one or even both rounds of the nonverbal version of the location change game. Related evidence suggests a trajectory of false belief understanding in Gua similar to the developmental course found in Western cultures: whereas younger children's performance reached chance level in the nonverbal task, older participants tended to perform significantly better than chance (cf. Schneider et al. 2005; Wellman et al. 2001). Although this difference between age groups did not reach significance, the question why children performed better in the crucial nonverbal false belief task in comparison to the critical verbal part has yet to be answered: all crucial conditions in the two games presupposed the understanding of the concept of false belief. However, there are some features that considerably alter demands in the nonverbal false belief trials. First of all, children might have been more comfortable with the situation than at other times during the testing session. Most likely, this was primarily due to the fact that the nonverbal part bears resemblance to a natural game played in the village.[7] To summarise other possible explanations, the nonverbal task helped to eliminate possible unease and excessive demands caused by heavily verbal and culturally inadequate task(s) and, hence, it comparatively simplified matters for Gua children. The most obvious advantage of the nonverbal task was the

reduction of communication problems caused by the presence of different native speakers. In contrast to the verbal location change task, it facilitated comprehension as it was not loaded and not complex but virtually devoid of explicit communication except for the request to look for the stone which children had already demonstrated to understand in accordant control conditions of the search task. As a result of the fact that the nonverbal task nearly completely goes without verbal statements (e.g. Tok Pisin), a major reminder of school-related aspects was eliminated. With the omitted request to render an explicit response to an unusual task, children's strain and stress might have eased. The procedure in the other trials had depicted a culturally unusual situation since children were primarily asked to sit there watching and to then respond to a formal questioning. Even though the prediction question in the verbal part of the location change game is followed by the invitation to look for the stone and to actively do something in the location change game, the proceeding in order to receive the actual false belief score (i.e. to predict the assistant's action) had nothing in common with what children usually experience at that age. In contrast, they just had to make logic conclusions about a current situation to accomplish the nonverbal rounds and to achieve a positive score. "They had to understand something of the beliefs upon which a currently observed behaviour [of the assistant] was based – and to act on that understanding" (Call and Tomasello 1999: 382). It appears to be of additional importance in this context, that children's action in the nonverbal trials happened upon request. It was a directive order. This meets a distinct experiential factor Yupno children encounter in their village: as already mentioned small children's everyday life is above all defined by executing orders for older members of the society. Against this backdrop, the nonverbal part of the location change game is consistent with Yupno people's indigenous cognition and, hence, match people's everyday life values (e.g. Berry 1988): participants had to respond to instructions received and to follow them. Furthermore, considering the fact that Yupno people talk rather about people's behaviour and emotions, whereas they do not usually refer to their cognitive states, the kind of question posed in the nonverbal task is again geared to Yupno people's indigenous cognition. The nonverbal task requires the child only to act in the requested way, but not to think about other people's future state of mind and accordant acting.

Additionally, children did not have to deliberately ignore their own knowledge to fulfil the nonverbal task, that is, they did not need any

inhibitory control since a reality-based answer or a response based on their own knowledge was not possible. In fact, they could not know where the stone was, until Wilma would indicate it to them. A neurological study of Samson et al. (2005) affirmed that the inhibition of one's own knowledge (i.e. self-perspective) and the ability to reason about another person's point of view are situated in different regions of the brain. Accordingly, difficulties with tasks "may not be due to purely conceptual limitations but may rather stem from problems in translating conceptual knowledge into [appropriate] action" (Schneider et al. 2005: 262). It can be assumed that inhibitory control is valued in Yupno culture, considering the fact that members are required to behave in an advisable way. Whereas, in the deceptive container task, it was above all the chosen material that often represented too much a temptation for the children to give a correct answer, participants' general difficulty in inhibition may result from the fact that they do not yet equal the status of a complete human being in their environment. Only from then on would their society expect them to explain themselves regarding their behaviour and its consequences as well as to oppress inadequate behaviour as it was needed in order to be successful in the verbal tasks. The nonverbal condition most likely helped to distinguish between an existent false belief understanding and particularly two impeding factors: on the one hand, the task circumvented the fact that children are not used to overtly express their understanding on a verbal basis (in contrast to the verbal trials in the surprise content task and in the search game) and on the other hand, they did not have to inhibit their own knowledge. Nevertheless, there is more research needed to further elucidate the relationship between theory of mind abilities, inhibitory control and verbal skills.

Finally, there is another crucial reason for children's better performance in the nonverbal trials: these rounds especially suited Yupno culture, that is, they bore resemblance to a natural game, the material was adequately chosen (particularly in contrast to the surprise content task) and the request for the demanded behaviour coincided with children's everyday experience at that age, instead of being culturally unsuitable, which could not systematically be overcome neither by younger nor by older participants in the verbal task

Yet, the exact developmental trajectory is of debatable value due to an analysis based on a sample rather small in number and a consequent aggregation of participants into two groups. However, results of the nonverbal trials indicate a trend similar to findings of previous research in

Western cultures: at first, children appear to answer in line with their self-perspective, only taking into consideration the false belief of a protagonist at a later stage of development. The nonverbal Western paradigm implemented far from its original culture may be cautiously taken as evidence that suggests that Yupno children in Gua indeed have a false belief understanding: whereas children's worse performance in the verbal tasks was probably due to a cultural bias that distorted results, the increased suitability of the nonverbal task indicates a theory of mind-related knowledge. While the verbal task does not represent a valid measurement method (Lillard 1998), the nonverbal task demonstrates Yupno children's underlying (and otherwise hidden) competence. Indeed, it was shown that it is of crucial importance how we try to attest a certain ability or concept. Yet, there has to be further work done to find out whether indigenous cognition in Gua really involves a comparable common sense psychology. In the light of both, existing ethnographic and psychological (field)work, we conclude that Yupno children at a certain age possess the ability to refer to their own and other people's state of mind and that they have an idea of varying representations that even differ from reality (e.g. they know about the possibility of false beliefs). There are several details derived from participant observation (e.g. children's play environment, the practice of bride price) that are suggestive of a folk psychology in Gua that indeed resembles manifestations of Western theory of mind. Yet, other anthropological findings demonstrate (e.g. the notion of shame, the clearly relationally defined personhood, the ideal of a socially integrated, slightly bent person) that the indigenous cognition of the Yupno people does not require for demonstrations of this competence, and hence the performance (as required in the study) is not much valued in Yupno culture.

Concerning future research in relation with theory of mind, we conclude from the above that it is beneficial to consider culture-specific scripts, behavioural rules and field of actions where a certain competence is naturally demonstrated (cf. Träuble et al. Chapter 1). Moreover, it might be interesting to include and realise these considerations in experimental paradigms. The findings of this research are once more highlighting the necessity to carefully plan and culturally adapt tasks. More and more researchers (e.g. Matsumoto 2001; Thomas 2003) claim that a deficient knowledge about a certain culture can only be compensated by interdisciplinary cooperation. Representatives of different disciplines such as cross-cultural as well as indigenous psychologists,

anthropologists and linguists may significantly contribute to research as they can offer their valuable insights. Cross-cultural research is often a delicate and tricky field – but it is probably tackled better if more than just one pair of eyes tries to overcome these adversities.

Notes

1. The psychological part of this joint article is a short version of a fieldwork accomplished by Mirjam Hölzel in partial fulfilment of the requirements to achieve a diploma degree in psychology at the University of Heidelberg in Germany. At this point the authors want to thank Sandra Hölzel for the editing of this article.
2. Especially during the last three years Gua villagers had, besides the repeated visits by the two anthropologists, Verena Keck and Jürg Wassmann, other European visitors, who would stay in their village for a couple of weeks and for all those they very generously provided housing, food and company: two anthropology students (in 2006), two ethnomusicologists, Don Niles in 1987 and Raymond Ammann in 2007, staying with Jürg Wassmann and Verena Keck; in 2009, the cognitive scientists Rafael Nunez and Kenny Cooperrider; and in the 1980s, there were two medical doctors, Sandra Staub and Andreas Allemann; as well as psychologist Pierre R. Dasen (cf. Wassmann and Dasen 1994a, 1994b) visiting – in short, middle-aged Gua villagers were to a certain degree familiar with scientists doing research and posing clumsy or irrelevant questions and asking for participation in various tasks and tests.
3. In the preschool of the village, children learn to read and write the local dialect of the Yupno language spoken in this specific area (Wurm and Hattori 1981). *Tokples* Gua is the Tok Pisin term for this local dialect. Tok Pisin itself is a synonym to Neo-Melanesian Pidgin, the official language and most common lingua franca in Papua New Guinea. Their teacher corrects mistakes, if pupils, for example, have to write a story about the day before and do not use the adequate tense. The school in Teptep, as well as high school in towns, offer additional English lessons. In general, there are three official languages in Papua New Guinea: Tok Pisin, English and Motu. In the Yupno region, Tok Kâte, a local language was used as mission's language and can be found sometimes today in the context of church and Christian religious events. Some, but not many children have a parent originating from a different language group who had married

into Gua village.

4. Most of the participating children could only speak the local language fluently, albeit growing up in a multilingual society (e.g. Keck 2005). Only four times did it occur that the games were played primarily in Tok Pisin with children that received an education emphasising clearly this language. In such a case the assistant only rarely had to engage supportively or repeat the instructions and questions, as participants' knowledge of this language would allow them to follow the initial instruction given by the psychologist, so that the local assistant only intervened if necessary.
5. Albeit always having posed an open question in advance of a forced choice question in both conditions of the game, it was decided to aggregate the answers to the open ended and forced choice questions in all rounds. The forming of only one score appeared to be adequate as most of the children only made up their mind and responded to the questions, when they were given the opportunity to choose between given answers. As only these answers were analysed, the description of the original procedure is shortened.
6. The psychologist discussed this matter with Courtney Handman, who recently stayed with James Slotta in the Yupno area. She affirmed that there exists a vocabulary to talk about mental states in Tok Pisin, although this lexicon might not be as comprehensive as in other languages (personal communication, July 16, 2008). Yet, the authors cannot state for sure whether this also applies for participants' vernacular dialect of the Yupno language, *tokples* Gua.
7. Description of a natural hiding game: one person hides an object (e.g. a coffee bean, a tiny piece of wood) in one of his/her fists. He/she keeps his fists behind the back so that the second player does not know whether the object is in his/her right or left hand. Thereupon, the hider shows his/her clenched fists to his opponent who now is supposed to guess in which fist the object is hidden. A number of viewers will watch the entire process of choosing, supporting either of the two players and making comments about why the object could be in the one or the other fist, giving more or less obviously hints as to the hiding place of the object (even though we may consider this to be cheating). If the guesser fails by touching the wrong fist, the hider gets a point and it is his/her turn again. If the guesser succeeds and the fist he/she has chosen reveals the object, it is his/her turn next and he/she will be the hider in the following round. Note, that there is no

winner of this game. Not until both players decide that they do not feel like playing it again, will it end. Asked about this, a child declared playing the game as an end in itself enjoying to spend some time together in a group. In the authors' opinion, this game bears remarkable resemblance to Call's and Tomasello's experimental game (1999) in various, partially crucial aspects: first of all, in both games, there are two main players facing each other. Secondly, one of the players hides an object behind his/her back, or as in the experiment, behind the chest, so that the opponent will not know the object's position when the fists or cups are presented to him/her. Thirdly, the communicator in the experiment can be compared to the spectators in Gua, trying to help the player just as the communicator helps the participating child in the study. Moreover, the fact that children in Gua play their hiding game just for fun or as an end in itself, further weakens the argument that the experiment might have consisted of too many rounds (making the children feel bored) and that the delayed reward might have demotivated the participants.

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ANITA VON POSER and BETTINA UBL

6 Investigating the Understanding of False Belief among the Bosmun of Northeast Papua New Guinea

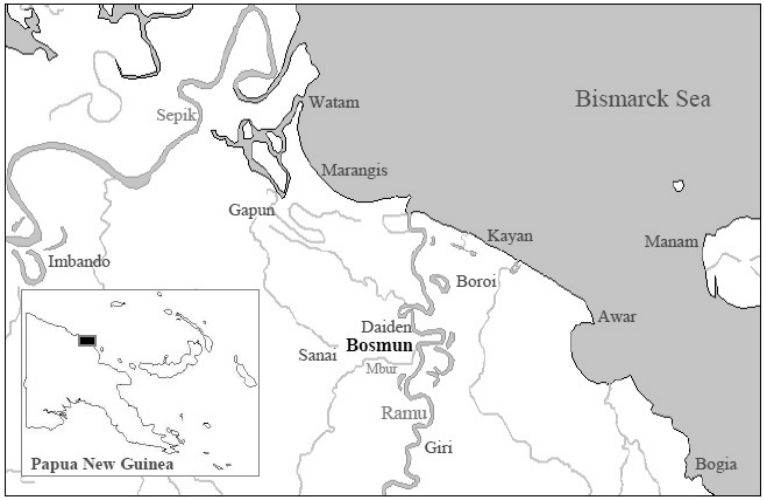
Starting an interdisciplinary collaboration

In what follows, we wish to present the results of our interdisciplinary collaboration among the Bosmun of Northeast Papua New Guinea. The initiative to investigate the understanding of false belief as part of the project *Person, Space and Memory in the Contemporary Pacific* (cf. Wassmann and Keck 2007: 1) came from Ubl's plan to do cross-cultural developmental psychology in Papua New Guinea. The plan at first seemed feasible but as the main character of the movie *Forrest Gump* says: "Life is like a box of chocolates, you never know what you gonna get!" After discussions with anthropologists working in the South-West Pacific, Ubl modified her initial idea of doing psychological research on her own and instead opted for a reciprocal and close collaboration with von Poser, who had been conducting ethnographic fieldwork in the Bosmun area since 2004.

Since research on children is a sensitive endeavour, as is introducing oneself into another culture, von Poser assisted Ubl and travelled with her to Papua New Guinea in April 2006. Von Poser stayed six weeks, Ubl three months. While Ubl would explore the understanding of false belief among Bosmun preschoolers, von Poser would help in culturally adjusting the psychologist to Bosmun life and in correlating the psychological methods and theoretical formulations with how Bosmun children are brought up socially. We conducted two psychological experiments: the representational change paradigm by Perner et al. (1987, see also introduction to this volume, Träuble et al. Chapter 1) and a study about children's ability to deceive by Peskin (1992).

Personhood and childhood in Daiden

Bosmun dwell alongside the banks of the Lower Ramu River in Madang Province. In 2005, the population numbered approximately 1500 individuals, with 250 of them living in Daiden, the place where we lived. Two languages are spoken by most adult speakers: a Papuan vernacular and Papua New Guinea's *lingua franca* Tok Pisin (Melanesian Pidgin).



Map 6.1: The Bosmun region

Children and teenagers are no longer fluent in their parents' vernacular. They know only single words, phrases, or metaphors. Almost all children below the age of six learn Tok Pisin as their first language. Young and middle-aged parents see no need to preserve the traditional vernacular since the former boundaries of the world of the local life have shifted. People frequently travel to the provincial capital Madang where they meet Tok Pisin speakers from other parts of the country and exchange alternative social ideas and values. Apart from Tok Pisin, children also learn English in schools. There are primary schools and a secondary school (teaching up to grade eight) in Ndoŋon, another Bosmun place, a two-hour walk away from Daiden. It is only during the dry season, from approximately May to October when bush roads are not muddy, that

children of Daiden can visit class regularly. Since Tok Pisin is their everyday language, we decided to conduct our study in Tok Pisin.

With the exception of firstborn children who have to "replace" their mothers and live with their mothers' parents, children belong to their fathers' *xonom*.[1] Literally translating as "platform", the term is used to denote patrilineal clans and their men's houses. Here, political decisions are made which are based on a way of consent-finding called *koku taka xorpe* in the local vernacular (*koku* means "one", *taka* "to put [together]", and *xorpe* "consent"). *Koku taka xorpe* is a life-guiding principle and a paramount value in Bosmun decision making processes, allowing every male adult, young and old alike, to express his opinion. However, being a know-it-all is utterly misplaced in Bosmun political ideology. It is those men who appear modest and give food generously who will receive most recognition and thus political power. Women must not enter the men's houses. Yet, being men's equally acknowledged collaborators in sago-making,[2] which is the central food-obtaining activity in the Bosmun environment, they assist their fathers, brothers, husbands and sons to achieve morally approved personhood and therefore have considerable influence concerning social and political matters.

From childhood onward, one is taught that male and female agency is equally necessary for upholding life in both secure and sociable terms. Planting, making and sharing sago are moral activities from a Bosmun perspective and the major clue to understanding local male-female relationships and notions of person and self. Social, psychic and bodily well-being depend on whether one has enough food to share with others. To be an industrious sago-maker means to keep one's social cosmos in balance. Relatives living in different households should regularly send each other plates of stirred sago. In tracing where food-plates are sent and how often this is done one can easily detect a family's kinship network. As in other parts of Papua New Guinea (e.g. Kulick 1992: 27, Tuzin 2001: 76, Anderson 2003: 58-59, Barker 2003: 53), relationships are cherished and maintained through the exchange of food.

In Daiden, producing and distributing sago is a shared obligation of either spouses or opposite-sex siblings. Parents bring up their children with the idea that brother-sister relationships have a particular significance and take this into account when adopting or giving up a child for adoption. Adoptions are common and parents adopt a girl if they have only a son and vice versa. Since sago-making depends on gender complementarity, each child should have a counterpart of the opposite sex.

With adolescence, sisters and brothers start to collaborate in the production of sago. With marriage, they find new partners of the opposite sex, not only for the sake of sexual reproduction but for the joint production of sago.

Elsewhere, von Poser (2011) has argued that the making and sharing of sago is also linked to local understandings of empathy. Such foodways are believed to instigate trust in people's hearts and foster mutual empathic openness. Different to other Pacific peoples, who consider emotional permeability impossible (e.g. Feinberg 2011, Lohmann 2011, Mageo 2011, Robbins and Rumsey 2008, Throop 2011), Bosmun believe that a "quasi-first person perspective" (Hollan and Throop 2008: 387) of another's feelings, thoughts or intentions can be achieved. The making and sharing of sago enables people to enact what they call *ramkandɨar* and what can be described as "watching others and being watched." "Watching" correlates with drawing one's own conclusions about what has been observed. The term *vaas*, meaning "to see"/"to watch", also implies that a person "think-feels" into something or someone. *Ndɨar* denotes any positive behavioural quality in Bosmun moral theory. *Ramak* (from which *ramka-* in *ramkandɨar* derives) literally means "eye" and implies that people related in terms of kinship should use their eyes to carefully watch each other and respond sociably if they see the other in troubled moods.

Children have to learn that a person should feel at ease with being emotionally assessed by others who belong to the same long-term food-sharing circle. Feelings (*vut moŋ*) are seen as genuine if they are shared and if they become either affirmed or transformed by what one's consociates add to one's verbalised subjective state. Bosmun emotionality is considered to be the product of intersubjectivity. When listening to casual conversations one can observe that personal thoughts and feelings, opinions and attitudes are uttered in overlapping ways. Mutual and repetitive interruption is positively valued and interpreted as a sign of concern for others. Once children make attempts to join a conversation, parents usually do not mitigate this wish but encourage them by paying attention. Thus, children learn that one's feelings are negotiable in the relational encounters with kin-members and that it is appropriate to emotionally inquire into the lives of others.[3]

However, there are prescribed ways of how to articulate and enact one's interest in others. Questions such as "are you hungry" or "do you

have enough food" are verbalised signs of upsetting others. To bring someone a plate of food without a smile or to give someone a broken plate containing food that is likely to spill through is seen as a way to communicate one's dissatisfaction over certain matters. Also, the secret consumption of food is read as a sign of intended social detachment. *Ŋguŋguru aam* ("to eat in secrecy") is what turns a person into a *ŋgumu mbakmbak* ("a face covered with spoiled sago"), which is the common description of a self-centred, greedy and stingy individual. Hence, people usually take their meals while sitting on the open veranda of the dwelling-house or a resting platform. Even cooking is an activity of public performance. The traditional Bosmun kitchen-house has no walls. Passers-by might easily observe what happens around a hearth. Hearths and sago swamps are in fact the most crucial sites of Bosmun child socialisation.

During the early years of childhood, boys and girls share a common world of social and embodied experience. Up until approximately the age of six, both stay particularly close to maternal bodies. According to Bosmun notions of body constitution and growth, fathers should avoid body and eye contact with their children until they reach a physical height "up to the father's hip", as Bosmun say. Small children are believed to deprive fathers of their physical strength. This is not so with mothers. Therefore, a large part of early child socialisation is women's work, although not exclusively. Elderly male household members who have long resigned from sago-making assist in looking after the youngest members. They also entertain the women of the household in casually chatting with them and they produce various items such as tools or woven bags that younger relatives use for work. Since women spend most of their time during the day preparing meals (there are about three mealtimes per day), small children develop early on a sense of what is a proper Bosmun meal – a plate filled with sago-pudding, fish, and vegetables. Food in a cooking pot therefore became a central object in one of our studies.

Connected to the phenomenon of *ramkandɨar* is also an emic theory of mind. Prior to adolescence, which is recognised as young bodies change noticeably, children are considered to be *rorer* (or *longlong* as expressed in Tok Pisin). The term *rorer* has three meanings. Firstly, it refers to the mental constitution of the child which is thought to yield irresponsible behaviour. Secondly, the term is used to describe an adult who suddenly behaves crazy, unsociably or egocentrically. Thirdly, it

denotes the state of being in sound and deep sleep during which the spiritual entity (*nyeroŋ*) which is believed to animate humans can temporarily leave the body. To be *rorer* basically means to behave in opposition to the ideal of *ramkandi-ar*. A person described as *rorer* does not cherish relationships through assessing others emotionally and allowing others to assess her/him. According to local understandings, children begin to lose *rorer* only as they actively start to take part in their families' regular sago-ventures. From the moment when children become able to walk longer distances, they are also taken to the sago swamps. But it is not until the age of about ten that parents encourage their children to seriously engage in this kind of work. At a household's hearth, children begin to accustom themselves to the "virtue of giving" (Barker 2008: 54). Other older children usually help them to develop this virtue. For example, a child holding on to a fruit while in the presence of other children is told to share it. Older children and, of course, adults who observe such a situation will immediately interfere (that is, take the fruit and redistribute it among all children) and comment upon the child's obstinate behaviour by scolding it and calling it *rorer/longlong*. Out in the swamps, children moreover acquire a particular "sense of sago" (Dundon 2005) and learn about the thoroughly embodied dimension of Bosmun morality. They turn into agile bodies, whose "skinscapes" (Howes 2005) bear the signs of the physical exertion in the swamps. A young person is finally ascribed sociability and mental or affective maturity when he or she returns home with self-procured sago. Thus, compared to Western ideas of theory of mind, a Bosmun theory of mind starts much later and depends highly upon social and embodied factors.

Interestingly, Bosmun parents teach their children playfully how to become generous agents. This is not the case, for instance, among the New Britain Baining of Papua New Guinea, where adults consider children's play animal-like and dissuade them from doing so (Fajans 1997: 7, 92). Bosmun children instead are encouraged to imitate and practice (*ŋgaaŋgo*) adult activities, and parents provide them with toys through which they learn what matters socially and interpersonally in this world. Von Poser's elder female interlocutors remembered playing with small figurines made of the clay that is also used in local pottery-making.[4] Yet, different to Western puppets, these figurines were not ascribed personality and intentionality. They served girls only as models for how to aptly dress and decorate the human body, and they would produce tiny bast-

skirts or necklaces for them. Moreover, they helped girls to acquire practical knowledge. The girls learned to knead and burn the clay and thus were introduced to the manufacture of cooking pots. Since traditional pots become increasingly replaced by enamel dishes, which people buy in town, young women no longer see a need to learn pottery-making. Neither of us ever saw these figurines. Von Poser (2013) also came upon a cooking scene played by children and observed the reactions of adults who saw the scene. The adults responded joyfully as they saw the children imitating in detail what can be seen daily in adult activities around the hearth. Among the most beloved toys made for boys are sticks which look like sago-scraping tools. Fathers make them for sons and thus motivate them to assist. This way, lessons on generosity come about in playful and sympathetic ways.

Such lessons in fact serve a very serious purpose. In bringing them up to be generously acting persons who should feel concern for others, parents seek protection for their children in later life. Stinginess, as framed in Bosmun thought, culminates in the unwillingness to share food and in the use of deception strategies. Stinginess is moreover what tempts people to use death-sorcery in order to get rid of somebody. Since it is adults acting too selfishly, "singular and unobliged" (Dalton 2007: 52) as it were, who are ideal candidates to become suspected sorcerers, children are taught unselfishness from an early age on. Von Poser (2013) has shown that a person's kin will never turn on her/him if the kin relationship has been affirmed through mutual and benevolent food exchanges. Even food-generous agents might become suspects, but the accusers will be people who belong to other, socially separated households and hearths. One's kin will be on one's side if one has adhered to the ideals of sociability once learned during childhood.

Against this cultural backdrop, we anticipated that the representational change paradigm by Perner et al. (1987) would easily work whereas our second study – a study about children's ability to deceive (Peskin 1992) – would cause difficulties. According to the theoretical background of false belief research, we expected five-year-old Bosmun children to recognise the false belief of another person more appropriately than three-year-old Bosmun children. Furthermore, if Bosmun children at the age of five are able to understand someone's true and false beliefs, they should simultaneously be proficient at intentionally deceiving a person to achieve their personal goals (Peskin 1992). In other words, children who have acquired the concept of belief are not only

supposed to attribute mental states to others verbally but succeed in manipulating mental states, such as beliefs, in social partners. Accordingly, mental manipulation means to conceal information about someone's intention in order to manipulate what social partners believe. Many ToM researchers argue that the competence to deceive and to mislead is a key competence which a child shows when it has developed a complete ToM (cf. Sodian and Thoermer 2006). In this context, we furthermore expected that, compared to three-year-old Bosmun children, five-year-old children more frequently withhold relevant information about an object of desire in order to intentionally induce a false belief in a social partner. Assuming a universal hypothesis, we expected Bosmun children to demonstrate the same age-related development as Western children in understanding false belief and in intentionally inducing a false belief in a social partner.

General methodological considerations for applying cross-cultural research

While anthropologists analyse the dynamics of socio-cultural life and the natural cultural habitat, psychologists emphasise test criteria like objectivity, reliability or validity to generalise their results to potential placeholders of their representative sample (Mishra and Dasen 2007). In this context, anthropologists differentiate between an emic and an etic approach. Following Berry's assumption (1989), a research method is emic or culturally adaptive if it has been developed within a culture. Consequently, it predominantly holds validity only within its culture of origin. The emic perspective is literally idiographic and hence conspicuously associated with Franz Boas' ideas on cultural relativism. Cultural relativists proclaim that each individual and the development of his/her processes cannot be examined and described independently of his/her culture and without the use of culture-inherent terms. The etic approach in contrast is nomothetic and marks its difference by inter-culturally examining purported research topics. However, in our study we tried to modify the psychological paradigms in relation to Bosmun socio-cultural life.

Furthermore, we were conscious of not prematurely imposing a cognitive deficit whenever the expected performances were not observed. Instead, we admit that failure in performance can also be explained by,

for instance, the *Labov-Effect* which suggests attributing nonsignificant results to inadequate testing methods rather than to cognitive deficits (Wassmann 1988). Following Wellman et al. (2001), the differentiation between performance and competence is an important point to be especially considered in ToM research. When applying a ToM task, Wellman et al. (2001: 656-657) advise entertaining the suspicion that

> [p]erformance on a cognitive task reflects at least two factors: conceptual understanding required to solve the problem (competence) and other non-focal cognitive skills (e.g. ability to remembering [sic] key information, focus attention, comprehend, answer questions) required to access and express understanding (performance).

Since we hypothesise a universal development of understanding false belief, we still plead for a more etic approach; otherwise the comparison between different cultures is not feasible. Hence, in cognitive cross-cultural psychology and particularly in cross-cultural ToM research, the application of accurate, quantitative measurements predominantly exists to detect non-observable, underlying universal processes or structures of human behaviour.

Helfrich (1993) emphasises the concept of equivalence which is thought to be partly in line with the emic and etic tenor in empirical cross-cultural science. In his work, he distinguishes four modes of equivalence which are supposed to make psychological phenomena cross-culturally comparable: (i) the equivalence of construct (conceptual equivalence), (ii) the equivalence of indicators (operational and functional equivalence), (iii) the equivalence of measurement (equivalence of investigation) and (iv) the equivalence of the scales of measurement (scaling equivalence). Since the last mode is self-explanatory it is not additionally clarified in this chapter.

Conceptual equivalence is based on the investigated concept or construct of a researcher's interest which should not diverge substantially when imbedding it in different cultural groups (Helfrich 1993). Operational and functional equivalence is more significant, since it indicates the investigated construct and as a result incorporates the validity of data (Helfrich 1993). Therefore, researchers have the need to guarantee that the cross-cultural operationalisation of the psychological construct represents the related underlying processes (Helfrich 1993). Moreover, they should ensure a priori that same behaviour does objectively have the

same cross-cultural function (Trommsdorff 1993). Otherwise, "(...) if similar activities have different functions in different societies, their parameters cannot be used for comparative purposes" (Frijda and Jahoda 1966). Equivalence of measurement (EoM) assumes that each subject should face the same experimental conditions to have an equal or at least similar opportunity to respond. Related to this, the degree of familiarity with an experiment and the relevance of materials for the subject influence their verbal and behavioural responses to the task (Wassmann 1988). Like culture-fair tests, the use of EoM implicitly allows for the development of tests or paradigms that provide the same relevance in every cultural group in which they are applied. Moreover, EoM means to adjust subjects' responses in respect to possible interference factors or to control these factors before implementing the experimental paradigm in a cultural group. If there are subject-related factors, like shyness of the subjects, which interfere with the dependent response variable, researchers have at any rate problems in properly inferring the underlying competence from the observed performance. To sum it up: the more natural and familiar a testing situation is the more valid the resulting data is.

With regard to ToM, we realised, for example, the importance of how the research purpose and the accompanying experiments were introduced. Prior to our planned community gathering in which we were supposed to explain the goal of our collaboration, a middle-aged man had heard us using the phrase "test" when talking to each other. Being quite fluent in English, he then preferred to use this term when assisting us by co-instructing the parents. As a consequence, parents told their children that they would have "to pass a test" when participating in the study. Contrary to our intention, they were associating the experimental session with academic challenges. We heard several mothers and elder siblings advising our tiny participators to perform well by telling them: "*Yu go long skul nau!"* ("Now, you are going to school!") or *"Em bai skulim yu!"* ("She will teach you!"). From our viewpoint, this was irritating to most of the children. Since we felt that the term "test" was obviously misleading, we chose the Tok Pisin term *pilai* ("game") instead.

What a Bosmun "box of chocolates" looks like: creativity in modifying a Western experimental task

In prearranging our procedure and experimental design, we wanted to implement culturally relevant, everyday materials in our experiments (cf.

Avis and Harris 1991; McCormick 1994; Vinden 1996, 2002). Also, we modified the imported experiments and materials after having collected people's reactions to and opinions on them in qualitative interviews.

The use of a culturally familiar container which does not comprise what is stereotypical and expected by the child is characteristic for the application of the representational change paradigm. In the Bosmun case, it turned out to be difficult to find an appropriate equivalent for a box of Smarties chocolates. Various containers are either self-made or they are employed in multi-functional ways. We were particularly challenged to find a container meant for the exclusive storage of a single and thus stereotypical content. We also had to make sure that both the term used for the container and for its stereotypical content were known by the Bosmun preschoolers of our sample. We thought matches, for instance, would be suitable objects since they are locally known and used. However, the three-year-olds did not apply the Tok Pisin term *masis* (for "matchbox"). In fact, this term is rarely used by Bosmun adult speakers who also prefer to use lighters today. Matches are simply labelled *paia* ("fire"). McCormick (1994) describes similar experiences among the Tainae in Papua New Guinea and the Quechua in Peru. Following her opinion, "[t]he problem of container suitability arises in cultures where possessions are few and mostly hand-made" (McCormick 1994: 98).

In view of such predicaments, we asked the assistants who supported us with ingenious and creative ideas about culture-stereotypical containers and contents. After conducting several pilot trials, we finally opted for two categorically definite containers which allow for the criteria of cultural relevance, cultural adaptation and hence for cross-cultural comparison. The first experimental container was an aluminium cooking pot including its lid, an object of strong socio-cultural relevance in Bosmun life.[5] Since everyone knows about the practical use of a cooking pot, we assumed that Bosmun preschoolers would expect food (*kaikai*) in it. Since sago and fish are the local staple diet, we anticipated these responses to be prevalent in our data. As unexpected content, we put in a small paper notebook. Although Bosmun children attend primary school at the age of seven or eight at the earliest, younger children are still familiar with books or (news)papers which adults use to roll tobacco in. Just as in many other places in Papua New Guinea, jointly smoking tobacco and chewing betel nut are culturally important and highly common habits when interacting socially in private or public places.

The second experimental container was an electric torch, a relatively common and popular item today which people use instead of local torches made of sago leaves; the electric torch gives light easily in a rural region that lacks a communal electricity supply. Since such a torch does not work without batteries, even young children at an early developmental state know the stereotypical content of this luminiferous tool. The play behaviour of Bosmun children shows that rubber bands are preferred playing tools, for example for shooting little branches or for wearing as bracelets or tying them together as a necklace. Whenever von Poser went to Madang town during her first fieldwork, she brought small presents back to her small informants and the girls, in particular, wished for coloured rubber bands. Thus, we removed the batteries of the torch and replaced them with several rubber bands.

By what Ubl knew from other cross-cultural ToM researchers (e.g. Avis and Harris 1991), we asked people who had already worked closely with von Poser in 2004-5 to assist us. Adam Saŋgam und James Yaŋgu Mindaŋg, both dedicated men and popular in the Bosmun area, provided their assistance in translating the instructions of the tasks into Tok Pisin and in conducting the experiments. In doing so, we attempted to guarantee a constant level of familiarity and acquaintance with the artificial experimental situation. To ease the artificial experimental procedure even more, we also began the sessions with warmup procedures in which children were playfully adjusted to the subsequent formal testing situation.

Bosmun children exploring the "box of chocolates"

Our assistants initiated the experiment by interviewing the child with a belief question trying to find out what the child initially believes is inside the cooking pot. The subsequent question (reality question) urged the child to look inside the cooking pot and to identify what is really but unexpectedly inside the container. In case of word-finding difficulties, the children were prompted by the "Lemma Question": "What does your mother usually put inside the cooking pot?" ("*Mama bilong yu i save putim wanem samting insait long pot?*"). The crucial think question (table 6.1) about what an ignorant person falsely believes (mostly one of his/her absent siblings or parents) was rendered with the Tok Pisin proposition *ting* which can literally be translated into mental activities like thinking, believing or wondering. While asking the think question

we, on the one hand, could directly refer the child's cognition to mental processes of the ignorant person. On the other hand, the question initiates cognitive processes in the child him-/herself (Lee and Homer 2000). However, since the proposition *ting* phonetically and semantically derives from the English word *to think,* the translation into Tok Pisin apparently matches the criteria of equivalence. Hence, our translation[6] seems to be defensible.

The children's verbal performance on the think question (serving as dichotomous dependent variable in further statistical analysis) was scored as a correct response if the child attributed the resulting false belief (expected content) rather than the reality based belief (unexpected content) to the ignorant person. Responses that were based on the true state of the container content were scored as incorrect performance.

	Age groups		
	3-year-olds (A)	5-year-olds (B)	
cooking-pot and lid with a tickler inside	a_1A	a_1B	"Nau yu tingting wanem? Sapos / taim […] blong yu i kam na em i lukim disela pot ya, em bai ting wanem samting i stap insait?"
torch with rubber bands inside	a_2A	a_2B	"Nau yu tingting wanem? Sapos / taim […] blong yu i kam na em i lukim disela tors ya, em bai ting wanem samting i stap insait?"

Table 6.1: Modified representational change paradigm (cf. Perner et al. 1987)

Compared to three-year old preschoolers, we expected five-year-old preschoolers to more frequently understand and attribute the false belief to the ignorant person. Assuming universality in developing a ToM, we anticipated that Bosmun children show an equivalent developmental trend in understanding false beliefs when compared to Western subjects. Given that this is the case, a gender effect should not be assessed.

The experiments took place on the veranda of our house in Daiden. It functioned as a quasi laboratory while keeping external interference factors constant. Since Bosmun engage in a form of transparent selfhood

through which they gain the ascription of sociability (von Poser 2011), much, if not the most part of their life happens outside, on the verandas of stilted houses and on the resting platforms. Due to this, we avoided working with the children in a room inside our house.

Children were asked individually while the person who escorted them, mostly the mother, was present but instructed to keep silent during the session. This was a rather new, artificial situation since, as we noted earlier, children grow up in a world where mutual interruption is the normal way of conversing. Before starting the investigation proper, the instructors played and chatted with the children (warmup procedure) in order to relieve them of negative bias and high arousal caused by the feeling of being academically tested.

The investigations were videotaped using a video camera installation and audio taped using a voice recorder (speech sequences). In addition to the visual and acoustic documentation, individual scoring sheets recording the verbal statements of the children were completed during the testing. This was done by Ubl who was sitting in an adjacent room and listening.

Children who know what is expected inside the "box of chocolates"

A total of thirty-six Bosmun preschoolers between the age of three and five (2-11 to 5-11) participated in the experiment conducted in Daiden. The children came from Daiden and from other Bosmun villages and hamlets. n=10 lived in Ndoŋgon, n=12 in Ndenekaam, n = 4 in Maaŋgo, n=3 in Raakmbo Ruaŋ and n=9 in Daiden. Since the experiment was conducted at the end of the wet season most of the bush roads linking residential areas were sludgy and nearly impassable on foot. For the majority of children and parents who were willing to work with us it would have been laborious and time-consuming to walk to Daiden. Walking long distances is not really an arduous enterprise from a Bosmun perspective. However, since the functioning of Ubl's equipment depended on a reliable supply of batteries, she had to consider time management as well and decided to take a motor canoe to meet the participants in Maaŋgo, a hamlet located at the Ramu between Daiden and the other villages and hamlets (cf. illustration 6.1).

The accurate age of the children in most instances could be identified when checking the children's clinic pass. Accordingly, five children were omitted from further analysis due to differing parental information con-

cerning the age of their child (n=1 2-11, n=2 4-10, n=2 4-11). The data of a further seven children were excluded because these children did not respond, either crying or remaining silent during the experimental session. Others were omitted because they had been told the correct response by the child who had participated before. In the end 26 children were included in the sample. The three-year-olds ranged from 3-0 to 3-11 (mean age 3-5, eight boys and five girls), the five-year-olds from 5-0 to 5-11 (mean age 5-7, seven boys and six girls). Children had on average three siblings (3.08; min = 0; max = 8; s^2 = 2,15) and were distributed amongst the villages and camps as followed: 23% (n=6) from Ndoŋgon, 27% (n=7) from Ndenekaam, 7,7% (n=2) from Maaŋgo, 7.7% (n=2) from Raakmbo Ruaŋ and 35% (n=9) from Daiden. Although genealogical data shows higher birth rates, indicating that Bosmun families consist of about six or eight children, our sample obviously included children from young families whose family planning seemed not yet to be completed.

What Bosmun children think what others believe is inside the "box of chocolates"

Six forms of contents were stated by the children when interviewed about the contents of the cooking pot. Most of them believed that there was food (*kaikai)*, sago *(saksak)* or rice *(rais)* inside the cooking pot. Only a few reported banana soup (*sup banana*), fish *(fis*), water (*wara*) or possum (*kapul*) when asked the belief question. Concerning the torch all six children who additionally underwent the alternative task invariably explained that they anticipated batteries inside the torch. Some of the Bosmun children were startled when they perceived the unexpected content in the cooking pot or torch. However, all of them responded appropriately by identifying the notebook as a book *(buk)*, paper (*pepa*) or cards *(kat)*. Finally, all responses of the children were semantically convenient and therefore scored as correct answers.

Concerning a 1 to 1 response ratio (either incorrect or correct response) 69% of the five-year-old children performed correctly when asked the think question about the belief of an ignorant person who had not seen what is really inside the cooking pot or torch (table 6.2). In contrast, only one single three-year-old child was able to predict that an ignorant person would falsely believe that there is food inside the cooking pot (or batteries in the torch). According to our descriptive data,

we assumed a significant correlation between the age of Bosmun children and the quality of their responses to the think question. We analysed our assumption by employing a chi-square test for between-subject analysis. Indeed, five-year-old children statistically more often performed correctly compared with three-year-olds ($\chi^2 = 7.96$, $df = 1$, $p < 0.01$, two-tailed test). Hence, our results were in line with findings of other studies investigating the understanding of false beliefs in Western or non-Western preschoolers (Avis and Harris 1991; Vinden 1996, 1999, 2002; Callaghan et al. 2005).

Illustration 6.1: Bosmun children sitting in the motor canoe to Daiden

To find out which factors predict the responses for the crucial think question, a binary logistic regression analysis was performed. According to

theoretical considerations about the development of a ToM, the four predictor variables age groups, sex, elder siblings and number of children within a family were included in our regression analysis. The results of the logistic regression reveal that only the predictor variable age of the Bosmun children were of significant effect for the question which tests the children's understanding of another's false belief ($p < 0.001$). After exclusion of the non-significant variables (sex, elder siblings and number of children within a family) the predictor variable age groups explained 49% ($R^2 = 0.49$) of the dependent variable of correct answers.

	Age groups	
	3 years	5 years
Incorrect responses	12 (92%)	4 (31%)
Correct responses	1 (8%)	9 (69%)
Total responses	13 (100%)	13 (100%)

**p > .01. (rounded values)

Table 6.2: Frequencies and percentages of Bosmun children's responses to the think question

In addition, binomial tests were applied under the assumption that the chance probability of correctly answering to the think question, which is scored dichotomously, is 0.5. Thus, we statistically analysed whether the Bosmun children performed significantly above chance or by chance on the think question. Among the three-year-olds' performance on the think question about the false belief was above chance ($p < 0.01$, two-tailed test). In contrast, performance of the five-year-olds was not significantly different from chance ($p \geq 0.05$, two-tailed test). In other words, we did not find any statistical significance if five-year-old Bosmun children did correctly attribute a false belief about the true content of the cooking pot (or torch) to an ignorant person. However, when analysing the data of a small sample size (n = 13), the results should be accepted subject to statistical restriction.

Deception as a result of understanding false belief

The second experiment we conducted was applied by Peskin in 1992 when she investigated the ability of preschoolers to deceive an antagonistic story character. In her study, Peskin emphasises that stereotypic deceptive strategies in everyday life are characterised by withholding

information or communicating altered information about our private mental states, for example interests, purposes, intentions and decisions. Since the performance of false belief tasks requires the competence to attribute mental states to others, ruse and deception require the competence to intentionally act in order to manipulate the mental state of others. In other words, when understanding false beliefs children should moreover be aware that deception ordinarily leads to the deceived holding a false belief. According to this, the investigation of deceptive behaviour is essentially restricted to two experimental operations. First, the deceptive subject should behave and act intentionally. Second, he/she should be able to mentally reflect on the false belief of his/her social counterpart.

In her study of children's ability to conceal information, Peskin (1992) reports a marked development between the ages of three and five years which is in line with results concerning children's competence in the attribution of false beliefs. Whereas the majority of three-year-olds did not know to misinform or withhold information about an object of their preference from an antagonistic puppet, five-year-olds succeeded in influencing the puppets' behaviour by influencing its mental state. Interestingly, 87% of the three-year-olds knew to verbally (e.g. "Go away!") or physically (spontaneous obstruction) repel the antagonistic puppet. Nevertheless, most of the children under the age of four years failed to learn to mentally influence the antagonist even after re-experiencing repetitive frustration. As a consequence only a few three-year-old children (29%) knew how to improve their competitive status by manipulating the antagonist's mental state. The results support the assumption that three-year-old children who were able to mentally influence the competitor did perform by applying a genuine concept of deception rather than strategies blindly learned. However, Peskin's study additionally benefits from a "self condition" and a "friend condition" in which children's performances are clearly distinguishable as either self-serving or prosocial deceptive behaviour.

Peskin's paradigm was designed in four competitive conditions, which three-, four- and five-year-old children had to perform in counterbalanced order. The goal of the competition was to gain one of three stickers for which the child stated a preference. In each condition children had to play against two puppets, which were conspicuous by their divergent playing attitudes. At the beginning of the experiment, the

first puppet character (referred to as bad puppet) was implicitly introduced as the child's antagonist pursuing the intention to always choose the sticker that the child desired most. To prevent bad puppet taking the most favoured sticker children had to conceal the relevant information about which sticker they like most by either withholding their preference or misinforming the bad puppet when asked. The second puppet character (referred to as good puppet) was presented as protagonist who never chooses the sticker the child wanted most. When asked by the good puppet, children had to realise that it is reasonable to reveal their individual preference to good puppet without risking the good puppet taking the sticker of their choice.

All children started with a pre-trial in which they learned the puppets predicted playing behaviour by experiencing a bad puppet who took their rewarding sticker and a good puppet who did not seek the sticker. The subsequent self condition which was included in statistical analysis was about mentally or physically defending a chosen sticker for the children themselves. This condition of highly affected involvement was repeated once. In the third and fourth conditions (other condition) the children assisted a befriended puppet in obtaining a sticker for him. By integrating a situation of less-affected involvement, Peskin accomplished an assessment of the children's ability to conceal information in place of another shy and needy character in which the children had to represent the situation as a third order mental state. In addition to the self and other conditions, an exclusion procedure was introduced to check whether all children understood the instructions and the task itself, and moreover to validate the motivation of the children to obtain the sticker of their choice. In the control condition the child was provided with the possibility to decide which puppet he/she wanted to exclude from the next trial in which only one of two stickers (one that was most liked and a second that was disliked by the child) could be taken by the puppet included.

Motivating children to get what they want – Bosmun creativity in establishing equivalence

At the time of our research, the deception paradigm of Peskin (1992) had not yet been applied in cross-cultural studies. Still, Peskin claimed to have developed a paradigm equivalent to a natural competitive situation that children universally experience in their daily social interactions with others. Because the paradigm implicitly claims to be a culture-free or

culture-fair task it seemed to be of relevance for our exploration of false belief understanding in Papua New Guinea.

To ensure data collection meeting the criteria of objective cross-cultural comparability, Peskin's design was kept unaltered except for a few modifications of materials. We heard in the beginning that Bosmun children do not play with puppets, and despite all the efforts made by Bosmun youngsters and parents to find alternatives, we could not make out a local equivalent to what was used as puppet characters in the original study of Peskin. From an anthropological point of view, it was particularly intriguing to see people's readiness and creativity in bringing forward our experimental endeavours. One day, for instance, a young informant brought us the leaf of a certain plant into which he had cut a face (illustration 6.2). He suggested that we should use two of these leaves, one for the bad puppet character and the other for the good one.

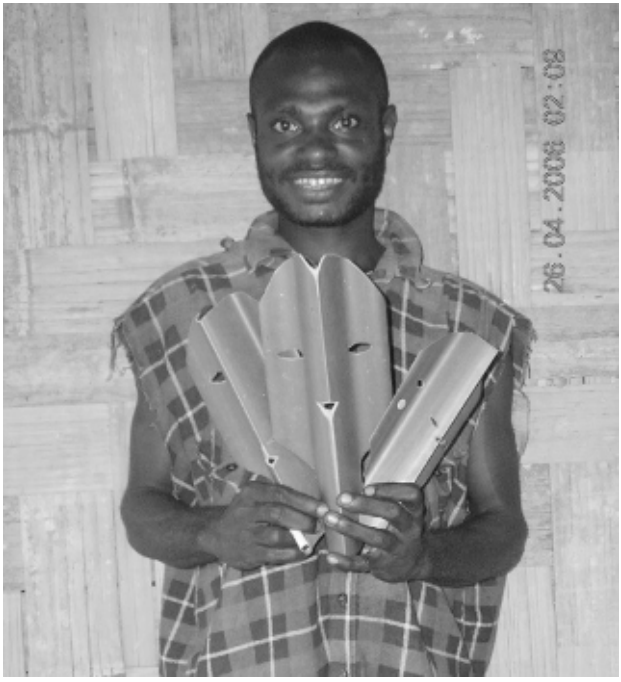


Illustration 6.2: Mask-like leaves which were offered as a substitute for the hand-puppets

When asked what these leaves were usually used for he remained somewhat reluctant but eventually said that this was something boys (not girls) were given occasionally to play with; while out on walks through the forest, boys were taught by their fathers to cover their faces with those leaves. We did not investigate further on this topic since the mask-like leaves were not convenient objects for trials with all children, that is, boys and girls, and since they obviously belonged to the realm of elder boys' games, boys beyond the age-level of our participating children. Moreover, these mask-like leaves were obviously used as a medium to prepare male youngsters for ritual mask-dancing which was regularly performed in this area up until the 1970's. To stage a mask-dance was a male matter, and whenever the dancers appeared on the ceremonial dancing ground, women and children would have to run into the bush and hide. They were not allowed to see those masks representing particular and powerful spiritual entities. For this reason too we discarded the idea of using these leaves, since we expected them to evoke fear in the children.

People were also enthusiastic about giving the puppets we had brought with us a try. Thus, they helped us to modify the prototypical puppets by endowing them with local features. In that, we were hoping to achieve high comparability. Ubl had brought fabrics in various colours with her and thus the puppets became identified and dressed. A darker colour was chosen for the puppets' skin as well as for their hair that we would twirl. Bosmun have different hairstyles, a traditional and beloved form being longer hair twirled with red ground (in the past headdresses were also worn). The puppets received arms and hands and we dressed them in waistcloths, called *laplap* in Tok Pisin, which are a common form of dress for women and men in many Pacific societies. In doing so, we a priori controlled interfering affects induced by negative associations[7] with any feature of the puppets. On the other hand, we tried to enhance the degree of the puppets' similarity to the children themselves. This way, we anticipated more familiarity with the testing situation. In order to control the influence of pejorative terms during the testing sessions and particularly in the control procedure, the puppets had to be without a specific gender and had to look identical – except for the colour of their noses (cf. illustration 6.3). One puppet had a white nose and was referred to as Waitnus ("white nose") and the other puppet had a red nose and was referred to as Retnus ("red nose").[8] It is quite common for Bosmun to describe people by naming them in ways which refer to their

physical appearance; such as calling a man with a hump simply "Baksaitbruk" ("back broke"). Another puppet called Friend *(poro)* was of different colour and shape while functioning as a character in the other condition.

Illustration 6.3: Retnus (left) and Waitnus (right)

Stickers are objects relatively unknown in Bosmun life. Therefore, we assumed, they would not provide the stimuli to purposefully motivate Bosmun children to act deceptively. We acquired information via unstructured interviews to find out which objects are prominent and distinguishable in their valence for the children to substitute the stimulating effect of a sticker. As a consequence, we then expected candy (*loli*) to be the most liked, the leaf of a passion fruit tree (*lip nating*) to be the most disliked and pepper vines (*daka*) to be a quite liked object in the competitive game against the puppets.

Bosmun children's procedure in getting what they want

We started the current paradigm after investigating children with the representational change paradigm. Children at this time became familiar with the situation of short experimental testing and moreover with Ubl, who in this paradigm could not be replaced by a local assistant since the

training in standardised instructions and testing procedure would have went beyond the temporal research scope. Trust in this paradigm is of particular importance and needs a lot of time to be established. As expected, young children at the beginning were irritated, unassertive and regressed in our presence. There was another factor that had to be excluded. Many times before, von Poser had heard parents telling their small children to keep them from crying: "*Anita bai paitim yu ya!"* ("Anita is going to slap you!"). Von Poser's insistent declarations that she, of course, would not slap the children, were casually ignored. Eventually, von Poser realised that this was a common attempt to stop infants from crying and that people used this phrase very frequently. As said earlier, we also had to convince parents not to tell their offspring that we were school teachers but people who want to play with them.

Children again were tested individually and in the company of one of their relatives. All participants were sitting on the veranda floor of our house in Daiden. At the beginning of a testing session, the bad and the good puppet were introduced to the child as Waitnus and Retnus puppet respectively. After listening to the verbal explanations and rules of the task, children were asked to rate the stimuli which were lined up on a small table in front of them. According to Peskin's testing procedure, the experiment continued with the pre-trial session in which the child actually experienced what had before been verbally explained. The four informal conditions (self and other condition) and the control condition followed the pre-trial. In the self condition children prevent the bad puppet from taking the object which they themselves preferred most. In the other condition children act deceptively in order to help the Friend puppet to obtain the object he liked most. A child was only supposed to attain the other condition if he or she succeeded in the self condition. If children apparently did not realise that misinforming or withholding information manipulate the puppets' behaviour, they were prompted to rethink their performance by telling them: "Think of what you can say or do so that the puppet does not choose the one you/Friend wants!"

Dependent variables are the children's strategically and mentally controlled behaviours toward the two puppets. A trial was scored as correct if the child withheld the information about his/her preference for one of the three objects. On the one hand, withholding relevant information meant actively misinforming or deceiving the antagonist puppet by verbally stating or pointing at the disliked object. On the other hand, children met with success if they passively concealed the information, for

instance by saying "I won't tell you!" Other defensive behaviour like the spontaneous obstruction of the Waitnus puppet were scored as physical strategies and not as performances depending on a mentalistic understanding of the child. If children chose the Retnus puppet (good puppet) for the control condition they indirectly indicated (a) that they had understood the task including the puppets' characters and intentions toward the objects, and (b) that they were motivated to obtain the object of their choice. However, if a child excluded the Retnus puppet and afterwards he/she did not win the competition against the Waitnus puppet (bad puppet), the child's data was not included in further statistical analysis.

Since we worked with Bosmun children who attended neither primary school nor kindergarten (no experience with formal learning situations), we reckoned that children would be impaired in their concentration and comprehension when actively listening to the aggregate and complex story of the paradigm task. Compared to three-year-old children we expected five-year-olds to more frequently conceal the relevant information about the rewarding object. The ability to influence Waitnus' mental state by inducing a false belief in him would then be rated as children's understanding of false beliefs. Comparable to Western three- and five-year-olds, we anticipated that Bosmun children of the same age would show the same developmental trend in creating a false belief in a social counterpart. After each experimental session, the tests were again videotaped, audiotaped and individually documented on scoring sheets.

Children who are expected to deceive

The subjects were eleven Bosmun children (five boys and six girls) who had already participated in our first study. When conducting the deception study, five of them were three years old (mean age 3-03; range 3-0 to 3-09; two boys and three girls) and six of them were five years old (mean age 5-08; range 5-00 to 5-09, three boys and six girls). The majority of the children lived in Daiden (N= 8). The others came from Ndoŋgon (N=2) and from Maaŋgo (N=1) but they often visited their relatives in Daiden. For logistical reasons, there were no more children to be recruited to participate in the second study.

How children performed to get what they want

Against our expectations only six out of eleven children of both age groups (3-0, 3-03, 3-06, 5-06, 5-11 and 5-11) rated the candy as an object which they liked most. The other five children were inconsistent in choosing an object of preference by either revising their choice or changing it from candy to pepper vine to the leaf of a passion fruit tree.
Two of the three-year-olds (3-01, 3-03) and one of the five-year-olds (5-07) excluded the Retnus puppet (good puppet) instead of the Waitnus puppet (bad puppet) from the control procedure (table 6.3). These results supported the assumption that three children did not understand the meaning and the rules of the competitive task and did not recognise who was the good and who was the bad puppet in the game. Moreover, none of these three children afterwards were able to obtain the rewarding object by correctly concealing their preference from the Waitnus puppet (bad puppet). It is possible that none of these children were motivated to acquire the object they had chosen in the trial before either. Finally, 72% of the eleven children were competent in recognising their easy chance of winning and decided to play against the good puppet.

	Age groups		
	3-year-old	5-year-old	3- and 5-year-old
Waitnus puppet (bad)	3 (60%)	5 (83%)	8 (73%)
Retnus puppet (good)	2 (40%)	1 (17%)	3 (27%)
Total	5 (45%)	6 (55%)	11 (100%)

(rounded values)

Table 6.3: Frequencies and percentages of the Bosmun children's exclusion of the Waitnus and Retnus puppets

None of the children who understood the competitive nature of the task were able to actively or passively conceal the relevant information about the object of their choice. There was no child who neither in the pretrial nor in the informal self condition misinformed or at least physically obstructed Waitnus from taking the object they claimed to like most. Instead, a five-year-old girl did not reveal information about her preferred object to Retnus puppet (good puppet) either. However, this girl

excluded Waitnus from the control condition and was therefore included in our analysis.

In her study Peskin (1992) emphasises the differentiation of self condition and other condition by describing the first as a situation of strongly-affected involvement and the latter as a situation of less-affected involvement. Furthermore she argued that, in concealing their intentions in the self condition, children have to represent the situation as a second-order mental state (bad puppet falsely thinks I want sticker X), whereas in the other condition they have to present it as a third-order mental state (bad puppet falsely thinks that Friend wants sticker Y). As a consequence, children who are highly motivated but not able to represent a problem as a second-order mental state are not able to conceptualise another person's counterfactual intentions (Friend wants the sticker which I do not like most). Thus, Peskin did not consider assessing the children's performances in the other condition if they did not pass the self condition. However, since we knew about significant aspects of Bosmun sociality such as the guiding principle of *ramkandɨar*, we were interested in ascertaining whether these rules apply in an experimental and therefore unfamiliar context.

For this purpose, three five-year-old children (5-01, 5-07 and 5-08) were tested in the other condition. Two of the three children presented the ability to misinform the Waitnus puppet in order to prevent him from taking the object the Friend puppet desired most. While Peskin's subjects did not show any discernible differences between their performances on the self condition and the other condition, it seems that for Bosmun children readiness in helping others was rather manifested and performed in the task as self-serving behaviour in the self condition.

Discussion

In our fieldwork we analysed the ability of Bosmun children to attribute or influence the mental states of others – proclaimed to be a developmental milestone in human cognition and thus a relevant marker of ToM development.

Throughout this chapter, we have looked at whether Bosmun children develop an understanding of false belief at the same age as young children of Western countries, such as those in North America and Europe. Basically, we attempted to answer the question of whether the under-

standing of false belief is developed universally or culture-specifically. In doing so, we favoured the idea of universality but we also wondered about the possible influence of culture. Against this backdrop, we then discussed whether our results argue for the assumptions of the theory-theorists, purporting that the concept of belief is a cognitive structure which is universally acquired in childhood at the age of approximately five years. In the case of results not in conformity with this hypothesis, we also considered our Western paradigms as not necessarily appropriate to the presumed criteria of equivalence which would make psychological phenomena cross-culturally comparable. As a consequence, we alternatively discussed whether our data reflects the competences rather than the performances of Bosmun children on false belief tasks.

While the children's performance on the representational change paradigm were consistent with our expectations on understanding false beliefs, none of them did mentally influence the behaviour of Waitnus, the bad puppet, in the paradigm exploring the children's ability to deceive.

After conducting her deception study in 1992, Peskin believed she had created an elaborate paradigm that was expected to examine children's understanding of false belief without eliciting interfering variables such as verbal responses which might mediate the subject's performances in the task. According to Peskin's argumentation, the nature of her paradigm generates a universal rivalry in children when acting against two opponent puppets within a natural competitive context in which they are requested to mentally defend an object of high desire. Since our study showed different findings, the question arose of why Bosmun children obviously seem to understand false beliefs (as shown via the representational change paradigm) but do not show strategies to influence Waitnus' belief by concealing the relevant information about the intended object from him. We suggest that the answer to this paradox is culturally grounded. Bosmun children of both age groups were not familiar with the kind of puppets required for the Peskin study. Small figurines made of clay used to exist. Yet, as we explained, they served a different purpose. They were neither ascribed an inner life nor any mental activities. In contrast to the findings of Wimmer et al. (1988), Bosmun children thus seemed to perceive Waitnus and Retnus as foreign and suspicious objects rather than game characters substituting real persons in the task. As a consequence, this caused age-unrelated impairment of the children's performance on the task.

Moreover, an insistent type of interrogation such as in a question-and-answer game as used in Peskin's study is rather unfamiliar to Bosmun preschoolers. Bosmun parents teach their children to accomplish things in rather informal, highly practical and dynamic lessons.

Casual conversing and story-telling, for instance, are vital parts of daily life and of child education. Below the age of 5, children are foremost listeners. Nevertheless, whenever they want to say something, parental tutors encourage them to do so. Children learn that proper acts of speaking allow for spontaneous, mutual interruptions, and thus a speech setting where clear questions are raised and clear answers required might appear odd to them (see the contributions in this volume by Tietz and Völkel Chapter 2, Mayer and Riese Chapter 3, and Hölzel and Keck Chapter 5). It seems that the Peskin design does not have the same relevance for Bosmun life as for Western cultures (see equivalence of measurements, Helfrich 1993) where children of the age of three years start attending formal learning situations in institutions like kindergarten or preschool.

To summarise, Bosmun children probably would have had the same response chance as Canadian children in the original study of Peskin, if the level of familiarity with the testing materials (especially puppets) and their relevance for Bosmun culture had been achieved in our study about deception. Our experience shows how important it is to choose appropriate methods and paradigms when doing cross-cultural research.

In Western societies, reward orientation, achievement-orientation, and assertiveness are traits which are already encouraged and reinforced in young children attending kindergarten. In Bosmun life, achievement-orientation is encouraged as well. However, one has to ask what is socio-culturally considered as achievement-orientation. Outwitting and deceiving the bad puppet would have caused a guilty conscience rather than leading to rewarding effects on the child. In other words, self-serving and deceptive behaviour is socially undesirable and sanctioned in Bosmun interpersonal life whereas in Western life the same behaviour is assessed as intelligent and ingenious.

In addition, children did not have to defend objects they already possessed but objects belonging to the researcher's study equipment. However, the results of the control procedure confirm that eight of eleven Bosmun children understood the task and were motivated to obtain the object of their choice. Nevertheless, children's performance in the test

sessions clearly showed that these eight children were only motivated to achieve their goal when acting in socio-morally approved ways such as when helping a friend in the other condition.

A direct question such as "What do you like/need/long for?" which was part of the puppet-task is rather impolite from a Bosmun point of view. Sociable agents ideally assess each other without asking such a question and act according to the knowledge which they empathically gain of the other. Von Poser (2011: 170) has described her initial empathic failure in an encounter with a small Bosmun girl. Asking her regularly (and politely) whether she would like to have some chewing gum, von Poser actually irritated the girl. Only as her fieldwork proceeded, von Poser learned that social consociates usually know each others' (food) preferences. Children's inconsistent choices of the most-liked object are thus likely to have risen from the fact that by explicitly re-interrogating about their preferred object we embarrassed them.

Furthermore, our observations support the assumption that Bosmun children do internalise the cultural importance of watching others and being watched very early. Thus, we agree with McCormick's idea (1994:117) that

> [a certain] kind of socialization practise (...) would not necessarily hinder the development of an understanding of mind (though a case for this perhaps could be made) but might only hinder the expression of an understanding of mind.

Concerning both methodological equivalences, we should subsequently reconsider whether the task represents a problem that Bosmun children see as needing to be solved (Wassmann 1988). In other words, does the competition against the puppets mark a relevant problem for Bosmun children in such a way that they think and act in a problem-oriented and strategic way, or does the experimental context not stimulate them in the same way as it stimulated Canadian children in Peskin's study?

Following McCormick's explanations (1994) regarding the Tainae in Papua New Guinea, only such situations that reflect everyday life in a society elicit processes of intentional thinking. If a problem typical to everyday life exists, subjects construe new problem-solving strategies by means of their pre-learned problem-solving algorithms (McCormick 1994). The findings of our study provide information that the process of problem-solving apparently was not initiated in Bosmun children, be-

cause (a) the children lacked either the necessary algorithms (knowledge), or (b) the existing algorithms could not be translated into the competitive context of the experiment. The first explanation would lead to the conclusion that the essential competence for this kind of problem-solving has not been developed yet and that the Bosmun children in question, in Bosmun terms, are still *rorer*. The latter explanation however points to the fact that problem-solving competences exist but that their employment is not considered necessary because the experimental context, as described above, does not represent a relevant problem (see Hölzel and Keck Chapter 5) for Bosmun children. Our assessments of Bosmun child behaviour toward others in daily interactions slightly contradict our experimental findings; at least with regard to children's physical or verbal strategies to obtain or to avoid losing something which they really long for.

For example, a three-year-old girl was observed hiding a guava fruit behind her back as someone else demanded it. Other preschoolers were seen holding onto a betel nut or shouting "no" when others intended to take it away. These assessments are of interest in our discussion since we can reason that behaviourally defending objects of desire represents a relevant problem in Bosmun children's everyday interactions and they develop competences and algorithms that are comparable to those of Western children of the same age. Hence, this supports the second explanation that our experimental context apparently was not perceived as a relevant problem in which Bosmun children would at least perform in a goal-oriented way by spontaneously obstructing the bad puppet from taking the object they wanted most. Bosmun children's performance relating to Peskin's paradigm does not seem to reflect underlying cognitive competences which would have been important to deceive the antagonistic puppet in the experiment. As consequence, we cannot attribute Bosmun three- to five-year-olds' difficulties with the task to a conceptual deficit since our findings obviously result from competence-masking task features which module theorists proclaim on several ToM tasks (Yazdi et al. 2006) and which in our study specifically can be ascribed to sociocultural rules.

The impact of *ramkandɨar* inhibited the implementation of methodological equivalences; this was predicted by Peskin and indeed was expected by us after having accomplished our Bosmun-related modifications on the task. If this was the case, Peskin's task cannot be imposed

into another socio-cultural context without putting researchers in an awkward methodological predicament. To study the same competence in Bosmun children as Peskin assessed in Canadian preschoolers, another methodological approach would have to be adopted. This approach would lead to a task which at the same time succeeds in creating a culture-appropriate but cross-culturally comparable experimental context to study the ability of deception (e.g. Greenfield 2002).

Whereas our results of Bosmun children's understanding of deception are not in line with our a priori expectations, the findings of our first study conform to what we had predicted before. The results of the representational change paradigm provide support for a relation between the age groups investigated and the dichotomous response which Bosmun children performed on the think question about the belief of an absent and ignorant person. Our effect on age groups is consistent with findings of numerous studies conducting a false belief task in Western cultures in which 40% to 80% of the four- and five-year-old preschoolers were competent in correctly attributing a false belief to another person (Sodian 2002). According to this, we assume that the Bosmun understanding of false belief, like that of several coeval children of other cultural groups, develops approximately at the age of five years.

Also, gender differences were not observed. This confirms our anticipation that the understanding of false belief of Bosmun girls and boys seems to be universally developed within the same time frame. After all, we have heard that Bosmun girls and boys basically share a common social world at this age. Gender differences like those McCormick (1994) reports in her study of Tainae preschoolers appear to depend instead upon the (gender-) heterogeneous sample she met.

Following Dunn et al. (1991) or Ruffman et al. (1998) the variables number of children within a family and elder sibling(s) are additionally supposed to explain the correct responses on the think question while ToM literature emphasises the assumption that younger children very often learn from their elder siblings, even in the domain of mental development (e.g. Dunn et al. 1991). We did not find support for these effects though Bosmun children grow up in families that include extended kin as well. Thus, a child's siblings are not just biological but also classificatory siblings, that is, Ego's parents' siblings' children and Ego's parents' same-sex cousins' children (von Poser 2013). Moreover, Bosmun children are part of groups that are comprised of many ages and that include adults and elders as well.

Many studies investigating false belief understanding in Western and non-Western societies show results that are similar to our findings related to the representational change paradigm (Avis and Harris 1991; Vinden 1999; Callaghan et al. 2005; Yazdi et al. 2006). Whereas younger preschoolers usually do not understand that an ignorant person will act according to his/her beliefs, most of the five-year-olds do not have difficulties in presuming that human behaviour and action is influenced by beliefs even if they do not represent the true state of affairs. This mental inability of three-year-olds could also be observed among young Bosmun children of our sample. Almost without exception, they were unable to dissociate their knowledge about the true state of the content of the cooking pot or the torch from their assumption about what an inexperienced person may believe.

Following theory-theorists our findings provide evidence for a deficit of the concept "belief" which is an important conceptual component of a folk psychology (Lee and Homer 2000) and which would enable three-year-olds to respond in the same mentalistic way as older Bosmun children.

Moreover, younger children show a lack of representational understanding since they do not represent mental states of others as consequences of their mental activity but merely as reality-based copies of what can be or already is perceived (Wellman 1990). Therefore, children first need to develop the concept of belief. According to our findings, this seems to be the case among Bosmun children at the age of five. Our findings are also consistent with the assumption that the development of the new concept is a universal and socio-cognitive phenomenon and that this conceptual change occurs between the age of four and five years.

Another position is assumed by the module theorists. As described in the introduction to this anthology (see Träuble et al. Chapter 1), module theorists suggest that the synchronous developmental onset of mental state reasoning is *not* underwritten by a conceptual change but by the activation of innate, domain-specific ToM modules which allows the child to attend to and thus to learn about the properties of mental states like beliefs. As far as compatible social input is given, a modular mechanism (Theory of Mind Mechanism, ToMM) accounts for an early and reliable shift in understanding false and true beliefs within the second year of life. Recent studies conducted by module theorists (e.g.

Yazdi et al. 2006) demonstrate that the redundant difficult task features of standard ToM tasks are responsible for masking the early understanding of false belief and for causing the performance delay of younger children in succeeding in false belief tasks. The Selection Processor (SP), "(...) conceived to be a general executive process required in many situations" (Scholl and Leslie 2001), is another domain-general mechanism decreasing three-year-olds' performance in false belief tasks.

However, before we can provide empirical evidence for or against an innate (module theory) or conceptual (theory-theory) mental structure for understanding false belief, simplified and approved procedures for false belief tasks have to be developed. Such soft methods, for instance, could be realised by task alterations emphasising the protagonist's mental state during the testing session: "She/he does not know what is inside the cooking-pot!" or "She/he did not see the books!" (see Siegal and Beattie 1991; Yazdi et al. 2006). The performance of very young children would be of special interest because their correct responses on false belief tasks legitimate the account of a competence that is considered to start much earlier than theory-theorists suppose.

Let us conclude by looking once more into the debate on cultural specificity and universality in developing a ToM. According to an anthropologically oriented, ontogenetic approach (see Schieffelin and Ochs 1986) all physical, biological, and cognitive processes are equally distributed all over the world and thus universal. Culture, however, influences them. If we transfer this approach to the development of understanding beliefs, we need to look at a precursor of ToM development to smooth the way, one which assumes that everybody regardless of his/her socio-cultural background is able to perceive the self as different to other selves and different to the physical world in which he/she lives and acts. Put differently: humans experience themselves as independent and autonomous selves and are able to distinguish their mental and emotional states such as feelings, thoughts, wishes and beliefs from those of others. Culture has an influence on how members of a social group articulate their self-dependent and autonomous mental states and how frequently mental states are debated and reinterpreted in situations in which children and adults are involved (Schieffelin and Ochs 1986). Among the Bosavi or the Urapmin of Papua New Guinea, for instance, "[t]here is little or no room (…) for public verbal speculation about the motives of others, and hence gossip and

confession were traditionally not highly developed modalities of interaction (Robbins and Rumsey 2008: 409).

Bosmun children grow up in a societal scheme in which interpersonal communication and the exchange of information about one's own observations, but also one's thoughts, feelings and attitudes are fervently practiced (as remarked, the exception is when it comes to contested knowledge). People have a profound sense of self. Yet, as von Poser (2011) has argued, they idealise a state of relational selfhood: they seek to merge their selves socially and emotionally with other selves so as to maintain benevolent relationships and harmony. This serves to hinder people from becoming exclusively subjects of their own desires and thus developing ill-will toward others. How profound a Bosmun sense of self is also becomes apparent in the following way: people are not convinced about a state of affair until they witness it themselves or until it is reported repetitively and forcefully to them. Hence, the use of language is a relevant cultural tool in the Bosmun context, functioning as a modality to articulate one's mental states (except desires).

Several ToM studies report results emphasising that speech development is essential for the development of a ToM. Conversational and communicative experiences with parents, siblings and peers veritably promote the development of mental concepts like beliefs (see Repacholi and Slaughter 2003). As soon as parents or other kin start to talk frequently and regularly about their feelings, thoughts and about the origin of their mental states, mental concepts become mentalistically understandable and reasonable for children (see Hölzel and Keck Chapter 5 or Dunn et al. 1991). Indeed, Bosmun children demonstrate significantly different performances on tasks investigating the understanding of false belief than other Melanesian children in McCormick's (1994) and Vinden's (1996) studies. Following the approach of cultural specificity, we conclude that Bosmun children, when compared to the children in McCormick's and Vinden's studies must undergo the same communicational experiences (by communicating and articulating mental states) and thus the same development in understanding false belief as children in North America or Europe.

Notes

1. Virilocality is the preferred mode for couples to live together, that is, women move to their husbands' households after marriage. The cen-

sus data that von Poser collected during her first stay with the Bosmun in 2004/2005 shows that there are also exceptions that are commonly accepted. In some cases, uxorilocality resulted from a husband reorienting himself after an extramarital affair and returning to his wife who, by now, had left the virilocal household for her natal home, to where her parents or brothers were living. If a husband is willing to stay with his wife in her natal home, she might forgive him. From then on, people will say that the wife must have used some kind of love-magic to commit her husband to herself and to her place.

2. In order to obtain sago, the whole trunk of the palm has to be cut down. Then, its bark must be removed so that its pith can be scraped out and shredded. Finally, the starch which is so elemental in the Bosmun cuisine has to be washed out of the shredded pith. In the Bosmun division of labour, the steps of felling the palm, removing the bark and scraping the pith are exclusively men's work whereas the rinsing of the pith falls to the women. For a myth-based explanation of the Bosmun division of labour see von Poser (2013).
3. Deception or reluctance, to put it more moderately, is accepted and occurs in situations where conversations turn to *yaam*, to the knowledge of myth and magic, of genealogical connections and land boundaries. On the one hand, plenty of *yaam* opens up a road to political and economic power. Yet on the other hand, it makes people vulnerable to the envy of others and to becoming the subject of sorcery attacks. Especially, Bosmun men have to engage in intricate manoeuvres. In order to protect their patrilineal rights, they have to accumulate knowledge of the kind of *yaam* but in a way which makes them still appear as humble persons.
4. Höltker (1965), a *Societas Verbi Divini* (SVD) missionary and ethnographer who visited the Bosmun area shortly in 1937 saw these figurines and made pictures of them.
5. Locally produced clay pots have symbolic meaning since they are made from local clay (von Poser 2013). However, since people also prepare food in aluminium pots, they too have social significance.
6. The "belief" or "think" verbs which are used in the probe question of false belief tasks was shown to affect children's performances depending on which language the question was translated into. Lee et al. (1999) were able to show that Chinese-speaking children performed much better on the think question when using the chinese

words *yiwei* or *dang*, both emphasising the likelihood of a belief being false.

7. We thought that a hand puppet made of socks and without any human characteristics, for instance, would appear more like a snake than a person.
8. Whereas in Western societies the colour red is traditionally associated with signalling danger and seeking attention, the function of red and white colours in Bosmun communal and ritual life is well-balanced, such as during ceremonies where the bodies of dancers are anointed with red-gleaming oils and white charcoal. Sago-paste can have a whitish colour, a betel nut chewed with lime and pepper vine is red, and both substances are basically liked by everyone.

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JÜRG WASSMANN AND JOACHIM FUNKE

7 Epilogue. Reflections on Personhood and the Theory of Mind

Personhood. A look back

What is a person? The anthropological perspective on personhood focuses on how different cultures conceptualise being human within a given society and all over the world. What actually defines a person? Does he/she have an inner life? What are the relationships with others like? How are these constituted in the perspective of the personal self? Is a person able to grasp feelings and thoughts of others, is the person I am facing therefore "transparent"? Or would this violate the person's privacy?

The idea of an individual, unique self is dominant in the Western intellectual history, it is the basic pattern other definitions follow, and anthropological studies also use this model. Alan MacFarlane (1978: 5) in *The Origins of English Individualism* takes

> … the view that society is constituted of autonomous, equal units, namely separate individuals and that such individuals are more important, ultimately, than any larger constituent group. It is reflected in the concept of individual private property, in the political and legal liberty of the individual, in the idea of the individual's direct communication with God.

In an anthropological landmark study, Jocelyn Linnekin and Lin Poyer (1990) distinguish between a Western autonomous individual, determined by kinship or bloodline (the "Mendelian model") and a concept prevalent in Pacific societies, where the boundaries between individual and society are less defined and where place and practice are far more important than blood ("Lamarckian model"). But is the Western autarkic individual not also a construct with little connection to how reality is lived?

LiPuma writes about the ideology of individualism (1998: 75; cf. Hess 2006: 285) and states: "In all cultures, I will argue, there exist both individual and dividual modalities or aspects of personhood … The foregrounding and hence transparency of individual and dividual aspects of personhood will vary across contexts for action within cultures" (LiPuma 1998: 56, 60). According to Jean and John Comaroff, the modern autonomous, self-reflecting, rational person is "… a Eurocentric idea" (2002: 67) which is too frequently contrasted with the pre-modern, relational or dividual idea. And it is profoundly parochial, particularistic. It is a "European chimera" (Köpping 2002: 48) since

> … (this is) a modernist fantasy about society and selfhood according to which everyone is, potentially, in control of his or her destiny in a world made by the actions of autonomous 'agents'. It is this fantasy that leads historians to seek social causes in individual action and social action in individual causes … (Comaroff and Comaroff 1992: 26)

This idea of an autonomous individual within the universe does not necessarily apply to other cultures. Ethnopsychologies are cultural ways of understanding personal identity, actions, and experiences. From this point of view, the Western interpretations, academic or folk theory, are only one of the possible ethnopsychologies. Yet already early on, anthropologists also constructed counter-models. The person is positioned at the intersection of the subject and the social sphere: Both of them have an influence, which is most of all not predefined but culturally determined. The juxtaposition of the Western (assumed) autonomous individual and the (imagined) relational or sociocentric person in the Pacific region developed gradually (A.Th. von Poser and Wassmann 2012).

An early thought about person and society can be found in Emile Durkheim's *The Elementary Forms of the Religious Life*, written in 1915. Durkheim (1964: 270) states that "... the notion of person is the product of two sorts of factors. One of these is ... the spiritual principle serving as the soul of the group." This is the very substance of individual souls. In addition, Durkheim mentions the aspect that individualises a person within the society, the body. As bodies are distinct from each other, and as they occupy different points in space and time, each of them forms a special centre about which the collective representations reflect and colour themselves differently. Durkheim localises the person somewhere

between the socially determined community soul and an individualising body.

In the following generations, Durkheim's nephew, Marcel Mauss, further developed this concept. According to Mauss, the concept of personhood is much more clearly embedded in a social network. Although he assessed, that each culture has a word and a concept for "I", and that man is generally aware of his intellectual and physical individuality (Mauss 1986: 3), he adds to this thesis a complete embeddedness of "I" in a social context. Mauss saw this from a historical perspective: Our (Western) development from the social "personnage" to the psychological "person" and further on to the conscious and autonomous unit, the "individual". Let us leave the temporal aspect aside. "Personnage" consisted of a set of characteristics represented by the mask, which means by a role. Starting from data of the Pueblo Indians, Mauss regarded a person's role in society as a social agent. From this set the person developed with more individuality, which existed also besides the role. The person had a body and a status, consisting of rights and obligations within a network of relations. Then a moral status was awarded to the person, together with independence, freedom, and responsibility, irrespective of rights and obligations. Finally, awareness was added to this moral being. Its place was the self, the "moi".

The term person must not be understood as an individual unit, but may be more like a knot within a social network of relations. This depiction of a Pacific person, or, to be more precise, a Melanesian person comes from Maurice Leenhardt (1947): "The relational concept of a person" (Pereira de Queiroz 1984: 9). Leenhardt was a missionary and an anthropologist, who, from 1902 on, studied the Kanak people of New Caledonia for twenty-five years. His idea of personhood contained a revolutionary element: the total connectedness of a person (cf. A.T. von Poser and Wassmann 2012). He dismissed the (Western) concept of a private autonomous individual in favour of a person in relation, which can only be localised as the centre of its relations (Leenhardt 1984: 203-205).

As of the 1980s, Leenhardt's early connective approach was reintroduced in many anthropological studies where the attempt was made to record the diverse conceptualisations of personhood in Pacific cultures. Anthropologists such as Geoffrey White, Catherine Lutz, Michelle Rosaldo, Eleanor Ruth Gerber, Marilyn Strathern or Andrew J. Strathern refer to selected Pacific ethnopsychologies. In the analysis of the person

and in the tradition of Leenhardt, these were the most important concepts: the "dividual" (M. Strathern 1988, who adopted an idea by Marriott 1976: 111; for a critic see Jolly 1992, Hess 2006, 2009), the "fractal" (Wagner 1991: 163), and the one of the "relational" person (Stewart and A.J. Strathern 2000: 17). This clearly was a model demonstrating an alternative to Western psychology, which had been far too Eurocentric, and still remains so today.

Grace Harris (1989: 600-604) introduced a distinction that is important for anthropologists and influential to this very day. Harris differentiates between individual, self and the person. Now, what does this mean? The individual comes from the biological perspective. A human being as such is defined, but socially undifferentiated. It is a "single member of the human kind". This concerns the human body, though not alone: A body's borders can be differently localised. Language is important, so that the individual can act socially. The self stems from the psychological perspective; it is the centre of inner and outer experiences. Self-awareness is a part of it, the feeling to be something special, differentiated from the others. Finally, the person is considered from a social point of view: Man as a social being, who acts and is an "agent in society". In summary, the sociological person, the psychological self, and the biological individual are culturally defined, and here the person very often is of prime importance.

According to the definition by Harris (1989), a person is a human being acting within cultural norms. This person does not necessarily have to be a human being, but it can be an ancestor or an animal, the actions of which influence people's lives. The other way around, a human being without social abilities can be considered a less important person, or even a non-person. In her Melanesian example, the Baining, Jane Fajans (1985) describes the development of personhood as a continuing acquisition of social characteristics all the way to the "food-giver" (and not only to the "food-receiver") and his/her disintegration with age. As a newborn baby, the infant is considered to belong to the realm of nature and not the one of culture, because it has not yet developed any linguistic and social behaviour: The baby is not considered a person. At the end of his or her life, an old person is de-socialised, because he or she is, once again, dependent on food from others. However, in other conceptions old age is considered very prestigious, among men as well as among women, who, after the menopause and the loss of their ability to reproduce, may become more and more "male", or men as well as women can generally

become more "human". The accumulated knowledge, though, is passed on to the next generation, and for this reason, old people do not lose their reputation until their death, though they lose their vital force (Keck and Wassmann 2010). Yet, due to recent global processes, old people now may lose their prestige, because their knowledge is less and less appreciated and needed. Admittedly, the linear-biological time (of aging) is only of secondary importance in comparison to the social one (as a succession of social positions).

All these presented attempts to comprehend non-Western concepts of personhood have one insight in common, that even essential elements, so far considered universal, can be fundamentally different. Mauss already expressed doubts about the universality of the concepts, and Leenhardt provided the basis for the new definitions of personhood, used by later anthropologists. Lately, new perspectives were contributed, for instance a person's age and aging, perceptions of space and time where the person positions himself, and his relations to the surrounding topography and to certain places; and finally the question about the individual human being's transparency or rather his opacity for others and his empathy vis-à-vis other people.

Opacity and empathy

In Western traditions the self is often very important (Carrithers et al. 1985; Kirkpatrick and White 1985; Lutz 1988; B. Morris 1994; Mageo 1998; M.W. Morris et al. 2001; cf. Wassmann and Keck 2007: 1-18). This inner self can partially be visible on the outside. Imputing intentions (as well as a will of one's own, cf. Murphy and Throop 2010) to other selves is widespread among us. In the theory of mind (ToM) the human being and his/her possible relationships to others is the focus of attention, the inner life and its transparency for others. Is this an essential mind ability, existing in all cultures, starting at the age of four (as in the West), since it is so important for a functioning social life? However, in non-Western cultures, the reverse can be true. Träuble et al. (in Chapter 1) already have addressed the findings (cf. Robbins and Rumsey 2008) that in many Pacific cultures, a strong emphasis on secrecy, concealment and privacy seems to be related to the notion of "opaque minds" and that therefore it is almost impossible to know anything about others' mental states. Reflecting on other people's thoughts may be seen as morally offensive or it may be a case of "… sensitivity about not presuming to

impinge on each other's self-determination" (Stasch 2008: 443). Empathy is thus a quality that is not always appreciated because it may violate the other person's privacy. Different from what psychology postulated for the Western world, children do not always show their own self or their own mental states to other children at an early age because it is culturally not desirable – even though it would cognitively be feasible. The kind of education plays a decisive role in this, the interaction between mother and child (Enfield and Levinson 2006). This has already been mentioned in the introductory Chapter 1 by Träuble et al. At the same time, opacity is not limited to the Pacific region, but is a worldwide phenomenon (A.J. Strathern 1976; Astington and Baird 2005; Danziger 2006, 2010).

Joel Robbins and Alan Rumsey (2008: 408) recommend that we have to

> ... rethink some fairly settled approaches to topics such as the nature of theories of mind, the role of intention in linguistic communication and social interaction … and the importance of empathy in human encounters.

In our opinion, mainly psychologists and anthropological linguists participated in the discussion. In the process, they did not establish a connection with the old ethnopsychological studies, and they also did not establish a connection with each other. We also have to much more strongly rethink this discussion and link it with the various concepts of personhood. The culturally defined person is in the centre because it depends on him or her whether a theory of mind applies, whether imputing intentions to others is desired and whether empathy is possible and if so, in which form.

However, for a long time nobody talked about these topics. The lack of interest may be due to the influence of Clifford Geertz arguing that those who presume they are being empathic are merely projecting their own thoughts, feelings, and experiences onto unsuspecting subjects of study (1984: 5-6). Or did the informants only speak of opacity in order to get rid of insistently questioning anthropologists, as Lucien Goldman suspects?

At any rate, in 2008 a special edition of the journal *Ethos* (Throop and Hollan) was published, later in the same year an *Anthropological Quarterly* (Robbins and Rumsey). In 2011 a new anthology by Hollan and Throop, *The Anthropology of Empathy* appeared. In all these

publications the definition by Jodi Halpern is influential. Halpern (2001: 11) defines empathy as "a first person-like, experiential understanding of another person's perspective", also as a task of personal imagination, imagining oneself in somebody else's place. Empathy, as understood in Western cultures, has cognitive and affective features. Cognitively it refers to the ability to see as others see, to simulate their viewpoint. Affectively, to empathise means to feel as if one were the other person. That is, to simulate oneness (Mageo 2011: 69), "… or at least knowing how they [the others] see the world" (Robbins and Rumsey 2008: 416; cf. Throop 2010, 2011).

In the process, the question arises whether these differences in Pacific societies might depend more on individualistic or more on relational accentuations of personhood, more on egalitarian or more on hierarchic social structures of the community. And if this is correct, how? We follow the model of Anita von Poser. "I will question, whether or not more 'individualistic' cultures cultivate empathic skills as thoroughly as 'collectivist' or so-called relationalist cultures do" (A. von Poser 2011: 174). James Weiner (1994: 24) has described the Melanesian world as a "world of relationality" – we already talked about this in connection with the Pacific concepts of personhood. It is therefore not surprising, when, according to James Carrier, in Melanesian communities it is often held that "motive and even sentiment spring from the relationship of which one is a part. Indeed, one's very sense of who one is comes not from one's self, but from the effects one has on others, the ways they respond to one's actions" (Carrier 1999: 30). However, Rupert Stasch (2008) thinks that opacity may be linked to an egalitarian ethos. Alessandro Duranti (2008) contradicts this because opacity can also be found in highly stratified societies like Samoa. Jeanette Mageo (2911: 76), however, takes an important step forward:

> Attachment in more individually oriented places inspires empathy as an imaginative identification of self with another, bridging the self/other divide. In more socially oriented locales, attachment leads to empathy as enacted: giving care in gifts, both material gifts like food but also more abstract gifts of service… to one's own group and through ceremonies, feast and festivals to other groups. Indeed, enacted empathy is the constitutive practice of what Mauss calls 'gift economics'.

Accordingly, empathy can be expressed by an action-performance. Mageo writes that *alofa* is not a matter of imagination in Samoa, but a material expression in the form of providing food or services (Mageo 2011; see also Feinberg 2011). Empathy is not a matter of "mind reading", like in the West, but here it is expressed in actions. To turn the argument around, the Bosmun believe that this emotional permeability is "…possible between people who belong to the same food-sharing realm" (A. von Poser 2011: 169). Anita von Poser cites the sociologist Arnold Buchheimer with the following sentence: "A sympathetic person feels *along with* another person but not necessarily *into* a person" (1963: 63; original emphasis).

All this leads to the question about the universality of the ToM, to ask whether ToM is innate, as psychologists tend to postulate, or socialised (as anthropologists tend to think).

Is the theory of mind universal?

We followed the approach of Vinden and Astington (2005), mentioned in Chapter 1 (Träuble et al.) of his volume, and we did not begin our considerations with the ToM, the child's competence, but with the concepts of personhood as starting point – they determine the relationship with other people. Yet Träuble et al. write,

> whether or not a culture conceptualises mind as a relevant entity or focuses on representations as motivators for behaviour, the ability per se is a human universal …

Is this correct? And is the next definition true:

> … given the important role of theory of mind abilities for our social functioning … one would assume that the developmental course [not only the existence] of such an important competence should follow a similar trajectory across different cultures (Träuble et al. Chapter 1 in this volume, addition by Wassmann and Funke).

We, a psychologist and an anthropologist, want to phrase it like this: The theory of mind, the possibility to put oneself in the position of someone else, is probably cognitive and affective, universally present. No doubt it is one of the basic competencies, a universal cognitive basis, an inner

mental process, a part of the underlying cognitive structures, which were already presented in Chapter 1.

In other words: The cognitive competence exists, yet, and this is decisive, due to cultural reasons it can be made visible only at a later stage or can be entirely unwanted. This means, in relation to the latent competence, there can be a postponed (in relation to the Western world) visible performance or none at all, as it can be found in many Pacific societies; neither mentally, nor in action, or the actions are only substitutes of explicit thoughts, as in the case of an opacity of mind. The same is true for emotions (Lutz 1988; Reddy 2001). They are not culturally predetermined, as anthropologists have too often surmised, but they are innate, and according to culture and language suppressed, expressed or differently classified. If a word is lacking, it does not mean that the emotion is lacking.

Here the concept of the cognitive style that the developmental psychologist Pierre R. Dasen frequently uses might be helpful. He thinks that "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 and Mishra 2010: 13-14). Cognitive style is one's preferred way of processing information and dealing with tasks (Zhang and Sternberg 2006: 3). In the centre is the individual child, who develops in a certain micro-context in the so-called "developmental niche" that consists of three components: The setting or the social context, the customs in education, and the caretakers with their parental ethno-theories of the child's development. Among others, the eco-cultural model, developed by John Berry (Berry at al. 2002), is part of the macro-system. The probably best-known cognitive style is field-independence *versus* field-dependence. In the first case, individuals produce judgments independently of their visual or social surroundings; in the second, individuals are more influenced by their surroundings and, accordingly, show social empathy more frequently.

Did not anthropologists often overestimate the "exotic" of "exotic cultures"? On the other hand, research on human cognition all too often ignored cultural diversity. Anthropologists had their problems "... to view things from a different angle" (Bender and Beller 2011: 1). The distinction between (universal) competence and (culturally determined) performance could help us; it also forms the background of the following quotation (Astuti 2012: 4-5).

> Angeline Lillard, herself a developmental psychologist, has argued that there are significant variations on the way people talk about minds, persons, emotions, and so on (Lillard 1998). … Scholl and Leslie – supporters of the view that ToM is grounded in a cognitive module that develops along universal lines [responded]: 'The cross-cultural differences catalogued by Lillard explicitly include differences in religious beliefs, and beliefs in phenomena such as witchcraft, magic and karma. As such, her view of cross-cultural ToM differences pertains only to *the inessential fluorescence of mature ToM competence*, rather than to *its essential character in early acquisition*… in general, Lillard seems to be looking at differences in *specific beliefs*, rather than at *the concept of belief.* … even specific beliefs *about* the concept of belief are not necessarily relevant: the concept of belief could be universally grounded in a module [as Scholl and Leslie argue] even though most cultures do not recognize the 'modular' account in their own folk psychology! (Scholl and Leslie 1999: 137).

However, folk theories, like the opacity of mind, are probably not simply "inessential fluorescence", but children seemed to be inclined to automatically compute other people's belief and expectation, as Astuti puts it, but that, as they grow older, they might gradually learn to abide by the culturally specific folk theory, at least in some contexts. This means that performance is no longer needed everywhere.

For that purpose, comparative studies are needed, and they are on no account neglected, as Norenzayan und Heine (2005) claimed. Yet it is true that the mutual influence of the two disciplines, anthropology and psychology, seems to be imbalanced, as Gustav Jahoda has mentioned in his foreword (this volume, cf. Jahoda 2011).

While one can find considerable evidence for the explanation of social or cultural phenomena in psychological terms early in the history of anthropology (e.g. Rivers 1914; cf. also Jahoda 1982), the explanation of behavioural phenomena in cultural terms has generally been less attempted in psychology (Jahoda and Krewer 1997). The field of cross-cultural psychology that has been developed in the 1980s was and remains an exception, where culture "is taken seriously" (Dasen and Jahoda 1986) by psychologists in understanding human behaviour (Mishra and Dasen 2007: 21).

Since both disciplines are concerned with closely related aspects of human nature (Wassmann et al. 2011), it is not surprising that many topics and questions are shared. There are, however, significant differ-

ences regarding how these issues are addressed in the respective academic disciplines. Within cognitive anthropology, for instance, Barbara Rogoff and Jean Lave (1984; Lave 1988), realising the limitations of the purely cultural focus, proposed a shift away from the "representations collectives" toward a more central role for the single individual. Along the same lines, Maurice Bloch (1991) criticised the prominent anthropological concept of the individual as "over-socialised". In other words, the idea of one homogenous culture (at any scale, applied to an individual or to the society) can be seen as quite inadequate, given the tremendous variability of individual biographies – today. However, when driven to extremes, the isolated "plain folk" individual, completely stripped of any cultural ties, is a limited model system, too. Nevertheless, apart from some socio-psychological strands, experimental work is often carried out on individuals in isolation and in highly non-natural (but carefully controlled) environments. On the other hand, within the psychological roots of modern neuroscience, the work of Jean Piaget dealt with the expansion of cognitive abilities in children, as a function of biological maturation and constant interaction with the world, a process that leads to continuous modification and refinement of world-views. Although focused on individuals, this now classic work had, therefore, a strong inter-individual and contextual aspect. The question as to whether the results obtained by Jean Piaget and others could be generalised soon sparked the need for cross-cultural comparisons, leading to the advent of cross-cultural psychology. Prominent researchers in this field, such as Pierre R. Dasen, John Berry and Marshall Segall, later concluded that certain information-processing mechanisms per se show very little variance across individuals:

> We found evidence of differences across cultural groups, differences in habitual strategies for classifying and for solving problems, differences in cognitive style, and differences in rates of progression through developmental stages [...] these differences, however, are in performance rather than in competence. They are differences in the way basic cognitive processes are applied to particular contexts, rather than in presence or absence of the processes. Despite these differences, then, there is an underlying universality of cognitive processes (Segall et al. 1999: 184; cf. Berry et al. 2002; Mishra and Dasen 2007).

In this approach, Segall et al. see the early generalisations of Franz Boas confirmed, according to which there is a certain "psychic unity" of all human agents. Already in the year 1911, Boas wrote in *The Mind of Primitive Man:*

> But it may also be that the organisation of mind is practically identical among all races of man; that mental activity follows the same laws everywhere, but that its manifestations depend upon the character of individual experience that is subjected to the action of these laws (Boas 1911: 102).

Along the same lines, Michael Cole and Sylvia Scribner, in agreement with Boas and Segall, explicitly named certain basic capacities that seemed to prove invariant in their empirical research sampling different cultural contexts. Among others, these were the capacity to remember, generalise, form concepts, operate with abstractions, and [to] reason logically (Cole and Scribner 1974). Here we draw the attention to three slightly different candidate faculties that shall be considered as possible basic invariants in human cognition: concept formation, working memory, and ToM (Wassmann et al. 2011). And we take a step forward. We might accept that there is an "underlying universality of cognitive processes", that "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". We are – perhaps – impressed that through imaging techniques cognitive processes can be visualised – the locus in the brain, not the process itself. Andrea Bender (pers. communication), however, believes, that:

> Cognition was seen as information processing, analogous to how information is processed in a computer. And for a long time, cognitive scientists were assuming that the processor and the algorithms with which it operates are shared by all humans, and that only information input and output is culture-dependent. This assumption justified a division of labor between anthropologists, who were interested in the information itself (i.e. the culture-specific content), and psychologists, who were more concerned with how such information is (generally) processed (D'Andrade 1981: 182). However, recent research increasingly suggests that this strict distinction does not hold (Bender et al. 2010; Bender and Beller 2011). Rather, the cognitive processes depend on cultural input as could be demonstrated for a range of domains (e.g. Bang et al.207; Atran 2008;

Domahs et al. 2010; Haun et al. 2011). Not only the contents of the processing, but also the processing itself, thus, the basic cognitive processes are influenced by culture.

This would mean that not only the assumed universal competence not necessarily has to become visible or expressed in each cultural context but that the cognitive processes themselves are influenced by culture.

Now, let us turn to the results of the field research presented in this volume. The questions asked above can only partially be answered by numerous field studies. This is not easy, since it became apparent that one cannot simply travel somewhere and ask some quick questions. The starting point of the studies was the question of whether we would find everywhere a ToM, and, in case there should be specific characteristics, how these could be explained.

Results from the field

Yap & Fais (Oberle & Resch) n = 69 (3-6 y.)	Tonga (Tietz & Völkel) n = 101 (3-6 y.)	Samoa (Mayer & Riese) n = 43 (3-6 y.)	Yupno (Hoelzel & Keck) n = 40 (3-6 y.)	Bosmun (von Poser & Ubl) n = 26 (3-6 y.)
Change Location Task (CLT)				
	FB • 3-4 y.: 47% • 5-6 y.: 75%	FB • 3-4 y.: 38% • 5-6 y.: 31%	FB nonverbal • 3-4 y.: 60% • 5-6 y.: 65%	
Deceptive Container Task (DCT)				
FB • 3-4 y.: 12% • 5-6 y.: 89% RCh • 3-4 y.: 16% • 5-6 y.: 96%	FB • 3-4 y.: 31% • 5-6 y.: 31% RCh • 3-4 y.: 46% • 5-6 y.: 39%		FB • 3-4 y.: 16% • 5-6 y.: 20%	FB • 3-4 y.: 8% • 5-6 y.: 69%

Table 7.1: Overview of all test results (Bender and Beller 2012: 205)

We argue that theory of mind abilities develop universally among all human populations. The onset of mental state reasoning, however, varies across cultures as a consequence of different socialisation practices and ethnotheories concerning, for example, mental state talk. Therefore, children in specific locales might pass false belief tasks years later than in other places – however, the fact that the corresponding ability develops speaks for the universality of the theory of mind. What is important: we cannot attribute children's difficulties with the tasks to a conceptual deficit, since our findings obviously in part result from competence-masking task features.

The arguments presented here could give the impression of a complete failure for any attempt of a cultural comparison with the help of Western tests, even if they are culturally adapted. However, we do not want to go that far. Obviously, a great many factors play a role in a non-laboratory-situation in non-Western surroundings, and they are difficult to control. We remind of the following aspects which are culturally predetermined and influence the results: Reluctance to speculate about others' minds, to talk about others, a lack of mental state talk (Tonga, Samoa, Yupno), the reluctance to express oneself verbally at all (since people are used to do so by their actions; Yupno), social adequate behaviour forbidding lies and deception (however, those should be used in the test; Bosmun), the children's possibility of discovering their own habitats as far as possible unhindered, without normative educational stimuli (Yap and Fais).

But the tests themselves and the test situations influence the results even more clearly: Highly verbal demands prevented children from demonstrating their competence, and only the nonverbal tasks eliminated confounding demands inherent in the verbal tasks (Tonga, Yupno). Moreover, although the nonverbal part was more culturally adequate, ToM may manifest itself in entirely different areas that cannot be tested, for instance it can be expressed through the medium of dreams or in the *tauak* (signs representing messages for others, e.g., a folded leaf). This indicates that ToM is incorporated into actions, but that it is preferred not to verbalise them (Yupno).

In some places these tests were carried out in public, in a public that can be tabooed, where direct questions are considered rude, a serious difference may exist between the public sphere (which is intensely tabooed) and the private sphere, between male and female spheres, between the behaviour during the day or at night etc. Publicly a question

would be answered by shaking the head or an "I don't know", while, at night, in the men's house or on the beach one would get a detailed answer (Yap and Fais).

Experimental paradigms are themselves Western practices and children in Western countries are more familiar with them. Early games and labelling routines between caregiver and child shape the way for the kind of performance required in testing situations. Children in some Pacific cultures might feel more uncomfortable and under pressure to perform well or to please the interviewer (Samoa, Tonga). Children grow up in a different system of values, playful, relying on their older siblings, full of empathy for others, yet usually without achievement or reward orientation (Samoa, Tonga).

All these topics are partially known from research in cross-cultural psychology, yet they never appeared in such a concentrated form as presented here. Obviously, the human competence to put oneself into the position of someone else exists. If the performance of this ability is desirable, it is rated differently. In all events, the test situation remains very problematic – at least it reveals a lot about the respective culture.

Final remarks

We want to finish our reflections with six observations we consider important and which relate to methodical aspects and to content.

(1) Conditions in the field are not like conditions in a laboratory. Normally, the control over test conditions is central for psychologists, since the comparability of resulting data is highly dependent on the fact that interfering variables do not spoil the conditions. In field situations one is firstly inclined to bid farewell to this "sacred cow". This does not mean, that the work is not done properly – on the contrary, all five contributions can be attested to careful considerations of this problem. By meticulously recording the unavoidable interfering factors, they allow an exact assessment of the reliability of the respective results.

(2) The research material that is used in Western studies must be adjusted to local circumstances to allow equivalent conclusions. The container tasks that are used in theory of mind studies, where certain objects are hidden at first in one container and then in another container, are not transferable to other contexts without modification. Again, the five

chapters are full of examples for successful adaptations of the research material to local particularities.

(3) Psychological research, ignoring cultural or social rules and customs, errs regarding the validity of its results. That means that, e.g., the customary prohibition to deceive someone among the Bosmun children, as it is expected as part of the change of location task, may lead to a wrong evaluation of the mental capacities of the tested subjects. The very fact that it is unusual in a culture for children to think about mental states of adults can slow down or even delay the development of a theory of mind. In this regard, Mayer and Riese argue "that the focus of empirical research in the field of cross-cultural developmental psychology should shift towards applying methods seeking to record children's cognitive skills as they happen, i.e. in children's daily routine and activities rather than in artificial experimental settings, which may not reflect the character and requirements of the world they actually live in" (pers. comm.). Are cognitive processes really universal? "The concession that culture affects not only *what* people think but *how* they think hasn't come easily" (Bender et al. 2010).

(4) A comparison in the vein of "we versus the others" may lead to a levelling and homogenisation of the respective cultures. Hence, a juxtaposition of Americans and Chinese/Taiwanese people (Chua et al. 2005), the usage of "Indians" as a comparison group (M.W. Morris et al. 2001) or the contrasting of the individuality or the relatedness of self-constructs (Markus and Katayama 1991) are all problematic and rather superficial approaches, which strongly remind of the beginnings of the culture and personality movement with their ideas of patterns and configurations. Small-scale groups, which traditionally have been the focus of ethnographic research, are more homogenous but through globalisation, the vitae within a culture start to differ from each other. The awareness of this problem leads to reflectiveness among anthropologists and psychologists. Lave (1988: 13) calls for putting the focus on the "social actor in action in the lived-in world" that is not abstract, but relating to the everyday life of each subject. The former confrontation of the individual, context-independent Western person endowed with a free will, with non-Western, highly sociocentric concepts is, on the other hand, a typical Eurocentric and essentialist construct (Biersack 1991; Jolly 1992; LiPuma 1998; Mosko 2010).

(5) We need to pay attention to the implicit, non-verbal knowledge that underlies stereotypical and routine actions. Language analysis is not the only key to cognitive categories and processes, a fact which has also become apparent in some chapters. The new source for insights into thinking processes are, among others, the "just plain folks" (Rogoff and Lave 1990) with their everyday actions. Actions can "speak", because thinking and doing are closely related (Funke 2012). Generally, even before they talk toddlers seem to have a rudimentary ToM (Träuble et al. 2012; cf. Goswami 2008: 379). Language plays an ambivalent role (Ochs 1988; Völkel 2010). Since success in a verbal belief task can be confounded with linguistic competence, actions are often more important than the verbal expression, especially in traditional cultures. However, this might change and can also be a reason for the results of the research presented. The mostly violent introduction of Christianity had a decisive influence on the traditional concept of personhood, because "…(e)ngagement with Christian individualism, with a singular person's relationship with God, presupposes a moral 'core self' that makes a person responsible for his own actions" (Hess 2009: ix; Robbins 2001; A. von Poser 2011, 2013).

(6) Robbins (2001) and A. von Poser (2011) point to the many struggles with which traditional societies are confronted. Struggles that people who hold an opacity ideology are facing when converting to Christianity, particularly in one of its Protestant forms, since they require honest talk. The ones connected with confession, relying on the assumption of the existence of an inner self that is accessible to introspection. The ones that develop when religious or formal rituals are sneered at, and when language is absolutely dominant, like in Protestantism, because many traditional societies value action over speech and distrust ritual speech, just like language generally, because it is not possible to adequately express with it what one is thinking oneself or what others are thinking. The listeners form an opinion. Yet much of this Christian talk is "talk about talk" (Robbins 2001: 904). This creates many serious shifts: From action to speech, from listening to talking, from secrecy and concealment to openness.

What do we gain from the field-studies in this volume? Firtly, on the part of psychology, to begin with, we gain a deeper understanding of phenomena often tainted with a hidden cultural bias, due to Euro- or

America-centrism. Secondly, through anthropological research some phenomena, which have been considered universal, could be put into the right perspective, and the universal validity of many assumptions was called into question. This means an improvement of the research situation, since more precise and context-oriented statements can be achieved. Thirdly, it is instructive for psychologists to reflect on qualitative methods as an addition to empirical-experimental methods. In recent years, the opening towards qualitative techniques from the side of psychology most certainly is the result of such mutual learning processes. After all, a debate about contextualised real-life-studies in contrast to the "artificial lab research" should be interesting for psychology.

The engagement with methods of data collection and data evaluation is of great value mainly for cultural anthropology. Yet, besides that, psychological concepts and theories about human actions in different situations also benefit anthropology. It could cause some anthropologists to think about their cultural relativism, when dealing with theories that are declared universal. By no means should a division of tasks leave the content to cultural anthropology and the method to psychology. Roy D'Andrade (1981) suggested a division of labour, whereby psychology would study how people think and cognitive anthropology would study what people think. The cooperation of anthropology and psychology is not the division of the object of research but the joint developing – at best together in the field as presented in this volume – of a deep understanding of phenomena which occur in cross-cultural contexts. This kind of research takes its time, and it may be strenuous, but it pays off at the end.

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Mirjam Hölzel, MA, studied psychology at the University of Heidelberg in Germany covering anthropology as subsidiary subject. After having graduated in psychology in 2009, she continues her studies in a course in systemic family therapy as well as in a postgraduate course in cognitive behavioural psychotherapy to get her licence to practice psychological psychotherapy. Additionally she currently is working in a psychological counselling service at a school for hearing impaired children and children with language/speech disorder. Her main interests lie in cross cultural psychology as well as in transcultural psychotherapy, generally seeking to address people not only on an individual level, but as people in relationships and in broader (cultural) context, dealing with the interactions of people and their different interactional patterns and dynamics. This passion, for example, finding expression in several long term stays abroad and in various trainings both obtained and given in the cross-cultural and clinical domain.

Gustav Jahoda, Emeritus Professor of Psychology at the University of Strathclyde, is a former President of the International Association for Cross-Cultural Psychology and Membre d'Honneur, Association pour la Psychologie Interculturelle. He has done research on perception, cognitive development and social psychology — mainly in West Africa, but also India and Hong Kong. On these topics he has published more than 200 papers. After retirement he turned to theoretical and historical issues, and his last three books are *Crossroads between Culture and Mind* (Harvard 1993), *Images of Savages* (Routledge 1999), and *A History of Social Psychology* (Cambridge 2007).

Verena Keck received her doctorate in anthropology at Basel University and her habilitation in anthropology at Goethe University Frankfurt. During the last twenty-five years, she has carried out repeated field research among the Yupno people in Papua New Guinea, besides research projects in Bali, Indonesia and Guam, Micronesia. She wrote her last book, *The Search for a Cause* (2012) on a neurodegenerative disease in Guam, is author of *Social Discord and Bodily Disorders: Healing among the Yupno of Papua New Guinea* (Durham 2005), edited *Common Worlds and Single Lives. Constituting Knowledge in Pacific*

Societies (1998) and published numerous articles in international journals. Her most recent publication is "Gesundheit und Krankheit in Ozeanien" (in *Medizinethnologie: Eine Einführung*, ed. K. Greifeld 2013). Her research interests include medical anthropology, identity and aging as well as contemporary issues in Pacific cultures.

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Andreas Mayer, PhD, studied social geography, cultural anthropology and psychology at the University of Heidelberg. He was part of the research group "Social brain" funded by the Volkswagenstiftung. In his doctoral thesis, he analysed the relationship between theory of mind and anthropological theories about alleged "opacity doctrines" in several Pacific cultures. Empirical research on children's understanding of false belief led him to Samoa for several months. In 2013, he joined the Department "Culture and Development" at the University of Osnabrück.

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Anita von Poser holds a teaching and research position at the Institute of Social and Cultural Anthropology, Free University Berlin. In 2009, she earned her doctorate in anthropology from the University of Heidelberg. She has conducted twenty-three months of ethnographic research at the Lower Ramu River and in Madang (Northeast Papua New Guinea). She has lectured at the University of Heidelberg and the PNG Studies Department of Divine Word University in Madang. Apart from her joint ToM research with a psychologist, Anita von Poser has worked in other interdisciplinary projects. She has held a doctoral scholarship by the multidisciplinary Marsilius-Kolleg of Heidelberg University, collaborating with several scholars on the subject of human dignity. As a post-doctoral fellow, she was part of the multidisciplinary Max Planck International Research Network on Aging. During this scholarship, she was based at the Max Planck Institutes for Demographic Research in Rostock and for Social Anthropology in Halle/Saale, Germany. Her publications include 'Bosmun Foodways. Emotional Reasoning in a Papua New Guinea Life-World' (in *The Anthropology of Empathy*, edited by D. Hollan and C.J. Throop, 2011) and her book *Foodways and Empathy. Relatedness in a Ramu River Society, Papua New Guinea* published by Berghahn (2013). Her research interests pertain to the anthropology of emotion and empathy, person, food, and place, gender, body, and aging.

Jochen Resch, MA, has studied Cultural Anthropology in Heidelberg and has worked as a photographer during his study. His aim was to combine Anthropology and Photography. In 2004 he conducted fieldwork as a recipient of the Volkswagenstiftung in Micronesia on the Outer Islands of Yap with the focus on the concept of the person within a local exchange-system called the *sawei*. After he returned in 2006 he had several exhibitions in Heidelberg, Guam and Stuttgart. At the moment he is writing his PhD supervised by Jürg Wassmann.

Julius Riese studied anthropology and geography at the University of Heidelberg, Germany. In 2007, Riese spent half a year in Samoa studying Samoan culture, history and language at the National University of Samoa (NUS). In 2010, Riese joined the Department of Anthropology at the University of Lucerne, Switzerland, where he has been employed as an assistant and lecturer. Currently he is holding a fellowship at the Graduate School of Humanities and Social Sciences at the University of

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