Can Culture Be a Variable?*
Dispositional Explanation and Cultural Metrics

Wolfgang Wagner**
Johannes-Kepler-Universität, Linz, Austria

Katsuya Yamori***
Nara University, Japan

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** Requests for reprints should be directed to Wolfgang Wagner, Dept of Social Psychology, University of Linz, A-4040 Linz, Austria. Phone: +43 732 2468577, e-mail: w.wagner@jk.uni-linz.ac.at.

*** Katsuya Yamori, Department of Social Psychology, Nara University, 630 Nara, Japan, Phone +81 742 43 6374, e-mail: pxf04242@niftyserve.or.jp
Abstract

It is argued that culture cannot serve as an explanatory independent variable in cross-cultural investigations of social psychological processes. Instead, divergent processes across cultures are better understood as a “content” of cultures, describing a cultural pattern. Consequently, cultures provide dispositional rather than causal explanations for process differences. Furthermore it is argued that independent of whether a theory turns out to be cross-culturally valid or not, care must be taken to avoid the fallacy of ethnocentric scales and concepts. That is, scales used across cultures may not measure the same phenomenon as long as a shared “semantic metric” has not been shown to exist.
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In an introductory chapter to a book on the cross-cultural challenge to social psychology, Tedeschi (1988) likens the role of cross-cultural psychology's research in often exotic places to the role the exotic duck-billed platypus—according to his opinion—has in biology. He alludes to the platypus as a kind of monstrous animal, as a deviation of what he probably considers to be the "normal" way of biological evolution; consequently the role of the platypus in the animal kingdom is an analogy to those "strange" non-Western people cross-cultural psychologists use as subjects in their research and whose culture appears as a deviation from "normal" cultural evolution. Even if Tedeschi later revises it, his position is one of the clearest expressions of scientific ethnocentrism which cross-cultural psychology set out to correct.

The platypus is in fact a good example to illustrate both, differentiation and convergence in phylogeny. It has the mammalian feature to secrete milk across a certain area of its body without having the glands concentrated in a breast. This secreted milk moistens hairs from which the hatchlings lick it. On the one hand the inconspicuous feature of secreting milk is clearly homologous to mammalian breasts. On the other hand the conspicuous bill resembles only superficially those of ducks. It is a functionally analogous feature attributable to its way of living in or close to water. Hence the platypus is phylogenetically much closer to "normal" mammals (and psychologists) than it is to ducks. Contrary to what Tedeschi alludes to, the message of the platypus case is that superficial exoticism must not be misunderstood as factual difference.

Cross-cultural comparison can be a remedy to unwarranted claims of universality. However, this enterprise presupposes another kind of universality, that of concepts and dimensions. Culture is a special case if used as an explanatory variable in research. On the one hand it is a system of semantically related phenomena which hardly can be decomposed without loosing its "essence". On the other hand independent and dependent variables are rarely valid across cultures. Hence, if research compares social psychological effects across cultures this very procedure introduces another, even more basic ethnocentrism due to an unwarranted use of ethnocentric scales and concepts.

Since its inception cross-cultural psychology has suggested an impressive set of hypotheses concerning the universality and—to a much lesser extent—locality of psychological
processes. The results of decades of replication and cross-cultural comparisons, however, provide little evidence for cross-cultural validity of many key social psychological findings. The universality of many theories which their authors implicitly claimed could rarely be corroborated by comparisons across cultures. Although this may be due to many reasons, the intricacies of culture seem to be the main culprit for the present state of affairs.²

A point in case is Amir and Sharon's (1987) seminal attempt to replicate the results from six classical social psychological studies in a culture different from the original, i.e. in Israel. Each study was replicated twice: once with a sample from the same socio-economic background as in the original study and the other time with a sample from a different socio-economic background. Out of a total of 64 results only 25 percent proved to be replicable with an additional 12.5 percent results being partially replicable, i.e. within the same socio-economic stratum. More than half (53%) of the findings were not replicable at all. More serious, however, is the fact that out of the 25% replicable results, only 12.5% were statistical interactions. The great majority of replicated results were main effects.

Amir and Sharon's (1987) study is the best controlled and most comprehensive study available until today. Given that the prevalent culture in Israel is certainly not of a "platypus"-type, but a rather Westernised one, are the results far from encouraging. Given the severe consequences of its findings it comes as a surprise that this study did not trigger an extensive discussion in cross-cultural psychology. With this in mind we suggest that the most important contribution of cross-cultural psychology to social psychology is to show its impressive failure to prove social psychological process universality to a reasonable degree. In the following we will discuss some reasons for this problem.

Content and Process Revisited

Cross-cultural research can be classified in two parts: One series of studies which intends to replicate social psychological effects or processes to reject or prove claims of universality. Another tradition of research draws on cross-cultural comparisons of values, beliefs and personality traits.

² Note that contrary to some authors’ opinion (e.g. Messick, 1988) replication of experiments is becoming more important in the light of the American Association of Psychology’s recent move towards replication instead of a prime reliance on significance testing (Bower, 1997).
Process effects refer to regularities of overt and verbal behaviour under specified stimulus conditions. In the ideal case, if a process effect can be replicated in different cultures, this process transcends cultural conditions. Research replicating process effects across cultures confirms that its explanation, i.e. the relationship between cause and effect inherent in the design of the respective experiments or quasi-experimental questionnaires does not depend on cultural conditions. The cause is said to be culture independent such that culture has no role in the explanation of the behaviour under scrutiny.

Systems of values, beliefs and traits found to be equal or to vary across cultures are a different matter at first sight. These systems, if found to be equal across cultures, describe commonalities between them. If found to vary across cultures, beliefs, values and traits describe the divergence across cultures. The explanation of such differences is often sought for in the wider socio-cultural context. Irrespective of being shared or not, beliefs, values and traits are characteristics of the cultural groups; they are common or distinct attributes and can be considered the attitude, belief or value content of the respective cultures.

Our argument is based on the so-called “modal model of causal explanation” (Kutschera, 1982, p. 101f) and not on the deductive–nomological model. The statement “Peter broke his leg because he fell down the staircase”, for example, provides a causal explanation of the modal form. In this model of explanation there is no need to refer to a general natural law—as it is necessary in the deductive–nomological model. It is more adequate for social psychological purposes as it is for causal explanations in everyday life (Wagner, 1994a). Note that the logical formulas serve to express what we are saying in a rigorous way. However, for a general understanding of the text, the reader may skip the formulas, because the essential proposition is always repeated in plain language.

For our present purpose an explanatory theoretical proposition is a proposition of the form

\[ x \ \text{AND} \ (x \rightarrow_s y) \]  

(1)

where \( x \) is present and \( x \) is a condition that has \( y \) as a consequence, where \( x \) precedes \( y \), and where \( \rightarrow_s \) is a contingent and not a logical (analytical) relationship. Additionally it is necessary to establish that

\[ \text{NON} \ (\text{NON} x \rightarrow_s y) \]

which means that (1) is a valid causal explanation only, if some other condition (\( \text{NON} x \)) does not have the same effect (Kutschera, 1982).
**Process**

A process is what a proposition like

\[(s \to_s b)\]  \hspace{1cm} (2)

describes. Let \(s\) be an experimental condition and \(NON s\) the control group, then a process is a transformation of the initial behaviour \(NON b\) into the subsequent behaviour \(b\) by virtue of situation \(s\).

For example, if a subject shows decision regret, i.e. he or she values an object more (behaviour \(NON b\)) before a decision (situation \(NON s\)) than he or she values it (behaviour \(b\)) after the decision (situation \(s\)), then this is said to be due to a dissonance creating process. The decision situation creates dissonance.

**Content**

The terms \(<s>\) and \(<b>\) are specific realisations or elements of the class of all situations \(\{S\}\) and of the class of all behaviours \(\{B\}\) which are considered equivalent with respect to the process. In psychology these realisations are often called operationalizations of the theoretical terms \(<S>\) and \(<B>\). The content of a proposition like (2) is the dyad

\[\{(s,b),p\},\]

consisting of the pair \((s, b)\), i.e. the matched elements of \(\{S\}\) and \(\{B\}\) which are related by \(\to_s\), and \(\mathcal{P}\) is the set of all subjects, the population, social group or culture, for which proposition (2) is true. It is usually a subset of humankind \(P\). A process is said to be universal, if \(p = P\), i.e. if \(p\) comprises all humankind.

Dissonance for example is not only produced by decisions, but also by performing difficult tasks for little outcome, etc. Hence "decision situations" \(s_1\) and "difficult tasks for little outcome" \(s_2\) are two realisations of the class of all situations \(\{S\}\) which are expected to produce dissonance. (Their characteristics must be defined independently of the outcome: It is for example incorrect to say that \(\{S\}\) is the set of situations producing dissonance. \(\{S\}\) must be defined by attributes which do not refer to dissonance.) The cognitive state of dissonance \(<B>\) can be assessed by different methods. In decision regret, \(b_1\) is "devaluation of a chosen alternative", in a "difficult tasks for little outcome" situation \(b_2\) is "valuing the outcome higher after than before the task". It is important that \(s_1\) is matched with \(b_1\) and that \(s_2\) is matched with \(b_2\). Hence, \(s\) and \(b\) often go pairwise.
Note that the population term \(<P>\) and the paired terms \(<A, B>\) are linked. If for example \(p \in P\) is a culture and the process (2) is culture specific and not universal, the set \([A, B]\) consists of situations or beliefs which exist only in this culture. In a way \([A, B]\) contains paired situations and/or beliefs which are possible in and characteristic for culture \(p\).

**Independence of Process and Content**

Content and process are independent from each other if all elements in \(((s,b),p)\) follow the process relationship described by proposition (2). There are no realisations \((s, b)\), nor sub-populations \(p \in P\) for which (2) is shown to be wrong.

**Interdependence of Process and Content**

Content and process are interdependent if the following is true:

\[
\exists t_i, t_j \subseteq T: (t_i \rightarrow_s (s \rightarrow_s b)_p) \quad \text{AND} \quad (t_j \rightarrow_s \text{NON} (s \rightarrow_s b)_p),
\]

\(T \subseteq S, t_i \neq t_j\) \hspace{1cm} (3)

or

\[
\exists p_k, p_l \subseteq P: (s \rightarrow_s b)_{p_k} \quad \text{AND} \quad (\text{NON} (s \rightarrow_s b))_{p_l},
\]

\(p_k \neq p_l\) \hspace{1cm} (4)

Proposition (3) means that there exist at least two sets of super-ordinate conditions \([t_i, t_j] \subseteq T\) which are theoretically expected to produce the behaviour effect \(b\). \(T\) partitions the set of operationalizations or contents \(S\) such that under condition \(t_i\) the relationship (2) is true while under condition \(t_j\) it is not true. Partition \(t_i\) must possess a characteristic which the partition \(t_j\) does not.

Consider the following example: Wason (1983) introduced a task which measures logical inference capability. It should be expected that any subject capable of logical inference solves the task according to his or her general logical ability irrespective of the specific framing of the task. The set of situations \(S\) contains all tasks of the Wason type, the set of behaviours \(B\) contains "solving the task" or "not solving the task". In a series of studies with the Wason task, Cosmides (1989) found that subjects were consistently more effective in solving the task if it was framed in the form of a social contract type (If a person drinks beer, he or she must be older than 18 years) than when it was presented in an arbitrary frame (If a student has the grade '2', his or her document must also show the letter 'D'). Hence the set of all situations of the respective logical structure \(S\) is partitioned into subsets \(S1\) and \(S2\) by introducing the variable <social contract type
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vs. non social contract type>, which systematically elicit behaviour $B$ (solving) or $NON B$ (not solving the task). Although the *logical* structure of the task is the same, performance is content-dependent. Note that the variable `<social contract type>` is super-ordinate to the variable `<logical type of the task>`. The process (2), i.e. "if a task is of the Wason type, it can be solved (by astute subjects) or not (by less able subjects)", becomes the content

$\{(s, (s \rightarrow s, b))\}$

of the super-ordinate process

$(t \rightarrow s, (s \rightarrow s, b))$.

This reads as "if it is in a 'social contract' frame $(t)$, a Wason task can be solved more easily $(s \rightarrow s, b)$" by all subjects than if it is framed arbitrarily. The original process as a whole becomes the explanandum.

Proposition (4) is more relevant for cross-cultural research. It means that there exist subpopulations $p_k$ and $p_l$ which partition the set of all populations $P$ expected to show process (2); for population $p_k$ process (2) is true while for $p_l$ it is not.

It has been shown consistently that many social psychological effects are true in individualist cultures but not in collectivist cultures. Hence, the dimension `<individualism vs. collectivism>` modifies the process modelled in experiments. This dimension partitions the set $P$ of all populations into an individualist and a collectivist subset. It is a dimension at a super-ordinate level of analysis. As in the foregoing example the cultural variable `<individualism vs. collectivism>` makes the process $(s \rightarrow s, b)$ true for one subset of $P$ and false for the complement $NON P$. Looked at from this super-ordinate cultural condition, the processes $(s \rightarrow s, b)$ and $NON (s \rightarrow s, b)$ become the content of the super-ordinate process involving *culture*. They become part of the content

$\{(s, b), p\}$.

That is, the specific realisations of the process $(a \rightarrow s, b)$ must be seen as content of processes that govern the working of the sub-populations $p \subset P$.

Figure 1 presents the foregoing argument in a schematic way. Contemporary social psychological findings are always a matter of differences in overt or verbal behaviour. These differences can be explained by reference (a) to situations (e.g. experimental); and (b) to socio-
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Cultural differences between samples. The figure illustrates the fact that one and the same behaviour difference may appear either as a process or as a content in a theory depending on its logical position in an explanation.

(a) If a difference in situations is the cause of a difference in behaviour, we think of it as a process. The relationship between the situation and the behaviour is a contingent, i.e. an empirical relationship. An attribution bias (behaviour) due to the subject being either actor or observer (situation), for example, is an attribution process and to attribute internally or externally is contingent on being an observer or an actor.

(b) If the same bias is explained by reference to socio-cultural differences between samples, it is the different socio-cultural make-up of the samples which explains situational differences in behaviour. An actor–observer attribution bias which differs (i.e. is present or not) across socio-cultural conditions (e.g. individualist vs. collectivist), for example, is a characteristic, i.e. a content, of the respective socio-cultural conditions.

There is a crucial difference between an explanation of type (a) and one of type (b). The cause in an explanation of type (a) is a difference between situations or conditions of the environment. Hence, if a type (a) explanation is true, any behavioural effect is exhaustively explained by the different situations. Differences between persons are not important and are purposely withered out by randomisation procedures in experiments.

An explanation of type (b) involves social or cultural differences between groups of people. The crucial variable explaining behaviour is not located in the environment, but it is the specific attributes of groups of subjects, i.e. the culture they belong to.

Social Psychological Processes which Can Be Considered Contents

A well known historical example is the famous "fundamental attribution error", i.e. the tendency of observers to bias causal judgements in favour of dispositional attributions. Today we know that this "fundamental error" is neither fundamental nor universal. Several authors (e.g. Miller, 1984) have shown that it is a disposition of Western subjects who were socialised in an

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3 There also exist biological explanations of social behaviour, e.g. for differences in mate-selection behaviour between men and women. This shall not concern us here.

4 Not all situation–behaviour pairings, however, are contingent relationships (cf. Smedslund, 1984).
individualist culture. What was interpreted as an attribution process at the beginning was later shown to be a cultural content, i.e. a local characteristic of a cultural group. The effect was re-interpreted as a cultural characteristic, i.e. as a content or cultural trait of individualist societies.

Another example of interdependence between content and process is D'Andrade's (1989) study of logical inference processes with culturally relevant vs. arbitrary material. Are Wason's (1968) logical inference tasks in the form of "modus tollens" presented in culturally familiar form, subjects are very effective in finding the correct solutions. Such tasks are, for example, "If Tom was born in San Diego, then he is a Californian" and "If Bill cut his finger, then he would bleed". If the tasks are presented in unfamiliar or arbitrary form, like for example "If James were a policeman, then he would like sweets" or "If Howard was in France, then George is in Italy", the quality of the solutions deteriorates considerably. D'Andrade argues that

"... the reason for the differential performance has nothing to do with the context affecting someone, but simply relates to the fact that somebody has a certain well formed schema made up of certain content which allows a kind of processing that the same person cannot do with a formally identical but less well-formed schema made up of other content. Or, to put it another way, content is not something which lies 'outside' (the context) of the representation of the problem. This just seems to be the case when one assumes that the problem is something made out of a particular logical form, rather than something made out of specific content." (p 141)

It is the cultural schemata at hand which allow subjects to solve the task correctly. The logical structure is part and parcel of the subjects' background knowledge and not a mental faculty by itself. Even mathematicians or logicians who should excel in such tasks, do so probably only because they dispose of task relevant abstract schemata typical for their professional "culture".

A somewhat more intricate example is the so-called "ultimate attribution error" (Pettigrew, 1979) or ethnocentric attribution. This is a tendency to attribute negative action of an out-group member internally and positive action externally. Actions by in-group members are attributed in reverse, such that positive action is explained internally and negative action externally. In a series of experiments in South-East Asia Hewstone and Ward (1985) showed that in Malaysia Malays clearly exhibit this effect while Malaysian Chinese show the reverse pattern, that is they respond in an in-group denigrating manner. Singaporean Malays again respond according to the ethnocentric attribution effect, while Singaporean Chinese reveal no effect at all, i.e. neither in-group favouritism nor do they favour the out-group.
Besides giving a host of other reasons including socio-structural and political conditions, the behaviour of the Malaysian Chinese is explained by them having adopted the Malays' negative stereotype of Chinese. Their inferior socio-economic status moderates local Chinese culture. The non-effect shown by Singaporean Chinese is explained by Chinese cultural norms of maintaining harmony and being generous.

The studies by Hewstone and Ward (1985) show that attribution patterns may not be as basic a process as expected. The authors allude to economic, political, and historical factors interfering with the subjects' cognitive working such that under certain conditions the effect does not show up or even reverses. However, instead of having local culture and socio-political conditions *interfere* with the process, the ethnocentric attribution tendency could as well be interpreted as a characteristic, or *cultural content*, of some groups but not of others. Attribution patterns may very well be an attribute of cultures, a content which *describes* certain culturally specific ways to perceive, evaluate, estimate or denigrate members of local in-groups and out-groups.\(^5\)

A failure to replicate psychological process across cultures is a case of interdependence of process and content. In the formulation (4) interdependence is the case when a process does apply to one reasonably large and coherent social group \(p_k\), but not to another group \(p_l\). In this case the former process "favouring internal attributions" becomes a content itself:

\[
(s \rightarrow_s b)_{p_k} \text{ AND } (\text{NON } (s \rightarrow_s b)_{p_l}) \Rightarrow (p \rightarrow_s (a \rightarrow b)).
\]

Read this as "if \(a\) causes \(b\) in population \(p_k\) but not in population \(p_l\), then the kind of the population determines the relationship between \(a\) and \(b\)". The relationship \((a \rightarrow b)\) is no longer a pair of cause \(a\) and effect \(b\), but \(p\) explains the difference in the process \((a \rightarrow b)\). Whether \(p\) provides a causal explanation or not is addressed in the next sections.

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\(^5\) The reader may want to imagine the following fictive example: If a Chinese psychologist had been the first to publish a fictive “allocentric attribution pattern” (i.e. the reverse of ethnocentric attribution) in Chinese Ss, would he/she—in the present logic—not be right to assume that this “allocentric attribution pattern” was a universal process? Any deviating attribution tendency of Western or Malay Ss for example, would then rightly be considered as being caused by cultural, economic, political, and historical factors interfering with the expression of the basic universal process of the “allocentric attribution” tendency.
Can Culture be a Variable in Social Psychology?

Translation and Meaning

Cross-cultural replication has the aim to combat unwarranted claims to universality, i.e. to correct scientific ethnocentrism projecting theoretical explanations of psychological phenomena onto populations where they do not apply. As an outcome of decades of cross-cultural research, Triandis (1996), suggests taking “cultural syndromes” into account as a remedy to this kind of ethnocentrism. “Cultural syndromes are conceived as dimensions of cultural variation that can be used as parameters of psychological theories … In that way, the current psychological theories will become special cases of the universal theories.” (p. 407) He acknowledges that Western psychological theories can be and often are ethnocentrically biased and suggests cultural variables to act as a modifier or as an additional explanatory variable for those theories. Identifying cultures or cultural syndromes where a process explanation does not apply then affords specification.

As we have shown in the last section a cultural explanation makes the supposed psychological process part and parcel of the set of attributes characterising the culture where it applies. Cultures where it does not apply, hence, do have different attributes. By this reasoning the attribution tendencies of the "fundamental" respectively "ultimate" attribution error become a characteristic of a specific culture. The ability to solve inference problems of the type modus tollens framed in different semantic contexts becomes a characteristic of those cultures where certain schemata are available.

The characteristic content of a culture, i.e. its set of values, beliefs, traits, response "biases", and available inference schemata is a description of this very culture. There exist several attempts to deal with cultural worlds in psychological science. One is cultural psychology, i.e. “thinking through cultures” as Shweder (1991) puts it. Cultural psychology sensu Shweder takes cultures as intentional worlds which are made-up and shaped by the very actors living in this world. Another approach is research into cultural and social representations (e.g. Jodelet, 1993; Moscovici 1988; Wagner, 1996, 1998). This approach views cultures as organised groups which socially construct hegemonic and/or conflictual patterns of thinking and world views. Thereby they perpetuate and change ever so slightly their implicit or explicit institutional structure. Social and cultural representations are descriptive accounts of group properties (Wagner 1994b).
Being descriptive approaches to local worlds, both cultural psychology and social representations theory contrast with cross-cultural psychology. The former approaches do neither assume that psychological theories ("classical" ethnocentrism) nor any dimension or conceptual construct ("conceptual" ethnocentrism) developed in the West apply to non-Western cultures unless otherwise proven. They emphasise local description and not comparison between cultures which necessarily implies at least one dimension being common to both cultures onto which those cultures can be mapped.

Cross-cultural psychology's intention is to use cultural attributes and syndromes as explanatory devices (e.g. Triandis, 1996). Triandis intends to search for "constructs that will indicate how a phenomenon found in contemporary psychology is modified in indigenous psychologies" (p. 407). However, by comparing cultures along dimensional syndromes cross-cultural psychology easily falls prey to conceptual ethnocentrism.

**Conceptual ethnocentrism** is defined as the assumption that a theoretical variable or parameter found to be a relevant characteristic of one culture can be used to map the variability of other cultures. A classical example is the individualism–collectivism variable. Individualism was found to be a dominant cultural trait of Western societies. The idea to this variable and the associated scale emanated from the Western individualism trait as one pole of an assumed variable where all non-individualist cultural groups can be mapped onto a position between the poles of strong individualism and strong collectivism. It is conceptually ethnocentric to suppose that a variable like this one can capture the complexities of non-Western cultures which happen not to be individualistic. While the individualism pole probably captures well a Western trait, the collectivism pole very likely does not capture the varieties of non-individualist cultures (e.g. Minoura 1996). By the same token "tightness", "complexity", "activity", "honour" and "verticality" (Triandis 1996, p. 408f) may be ethnocentrically biased as well. We suggest that indigenous psychologies are not only modifications of contemporary (Western) psychology, but contemporary local psychologies by their own right and with their own variables (Wagner, 1997a).

Still more at risk to be ethnocentrically biased than the aforementioned dimensions are cross-cultural comparisons along value and belief variables. If, for example, “persistence” appears to be a cultural value in HongKong but not with Illinois undergraduates, and “to be well adjusted” as a cultural value in both samples, the question arises whether “persistence” and
“being well adjusted” designates the same things in both cultures. This cannot be established by comparing scores on a common scale—even if properly translated—according to which criterion ever. The study (Triandis, Bontempo, Leung & Hui, 1990) shows that what is thought of the expression <being well adjusted> to mean in Illinois is widely shared among Illinois undergraduates and that what is thought of the Chinese language equivalent of <being well adjusted> to mean in HongKong is widely shared among HongKong undergraduates. The social values designated by the respective English and HongKong terms <being well adjusted> can be and probably are still widely disparate before equivalence is not established by other means.

The local values designated by the respective English and HongKong terms <being well adjusted> would in fact only be equivalent if it meant in both cases (a) “to talk, think and behave like others in my group”, or if it meant in both cases (b) “to appear like talking, thinking and behaving like others in my group” or if it meant in both cases (c) “to talk, think and behave as I wish as long as it does not annoy anybody else in my group”. The expression <being well adjusted> would not be equivalent if in one sample it meant one thing and in the other sample it meant another thing. For example, being well adjusted in the sense of (c) could very well be an individualist understanding; being well adjusted in the sense of (a) or (b) have more the flavour of an Asian culture. Even if all three have the same literal meaning of "being well adjusted", the specific content is crucially different.

Conceptual ethnocentrism is not a matter of incorrect translation even if translation of such sensitive concepts is quite problematic. We can translate virtually every word existing in Chinese or English into any other language. But translations, though literally correct, rarely capture what an indigenous concept means in the local world. Words and concepts not only name but define the very phenomena they designate by virtue of the specific local context of cultural practices and language use. They are more than labels. Conceptual ethnocentrism assumes that the very psychological concepts like mind, perception, emotion, motivation, personality, etc. are valid concepts for constructing non-Western variants of general theories. Evidence suggests that local theories can only be built with local psychological concepts (Jodelet, 1993; Wagner, 1997a, Yang, 1997). This position is vividly expressed in Kim and Berry's (1993) collection of indigenous psychologies.

As a final example we wish to analyse potential conceptual ethnocentrism in a theory–guided cross-cultural study which investigated inter-personal process (Wagner, Kirchler,
Clack, Tekarslan & Verma 1990). The study compared spouses' interdependence in conflict in traditional cultures where a strong gender-role segregation and associated male dominance exists (India, Turkey) with cultures characterised by gender-role integration and egalitarian values (Austria, USA). It was found that emotional interdependence of spouses is much less in traditional than in Western countries. The degree of emotional interdependence in conflict was operationalized as a variable computed from three scores. The scores were the subjects' ratings of well-being in a purchasing conflict where they were asked to imagine situations (a) where they buy a personally desired commodity despite their spouse's disagreement, (b) where they do not buy the commodity because of their spouse's disagreement and (c) where they buy the commodity with their spouse's agreement.

In this study purchasing was considered a sufficiently comparable activity in all four countries. People buy and sell commodities all over the world. By superficial appearance purchasing is the act to exchange a token (money) for a product with utility value. What the authors did not consider is that purchasing under the auspices of the spouse agreeing or disagreeing may mean something completely different in cultures with a profound role-segregation than purchasing in cultures with role-integration. First, marriages in traditional cultures are often arranged and not autonomous decisions of spouses as is the case in the West; second, love in the Western sense of sexual attraction and shared interests is not necessarily constitutive of marriages in other regions of the world; third, culturally gender-segregated activities, responsibilities, competencies and spaces in the house already imply that the other spouse is not supposed to share in the same activities, responsibilities, competencies and spaces. By this very cultural implication alone it is clear that spouses must be much more independent in traditional cultures than in Western ones. What we conceptualised as conflict by virtue of our Western experience (also the Indian and Turkish collaborators can be said to be Westernised to a certain degree) very probably is no conflict at all in traditional cultures.

Culture is a semantic structure of meanings, "a pattern of shared attitudes, beliefs, categorisations, self-definitions, norms, role definitions, and values…" (Triandis, 1996, p. 408) as well as

"an organized body of rules concerning the ways in which individuals in a population should communicate with one another, think about themselves and toward objects in their environments. The rules are not universally or constantly obeyed, but they are
recognized by all and they ordinarily operate to limit the range of variation in patterns of communication, belief, value, and social behavior in that population." (LeVine, 1982)

This system cannot be divided and analysed with respect to some single rule, single attitude, single belief, single categorisation, single self-definition, single norm, single role definition, or single value without losing the essential meaning inherent in their implicit and delicate cross-references with other meanings, cognitions and feeling. Each of these is functionally related to many others.

Consider the following example: 6 If you asked a chemist what a hormone is, she will tell you its chemical composition and molecular structure as a polypeptide, a steroid or an amino-acid derivative. Note that this is a chemical characterisation of a hormone, and that the chemical character is not a sufficient definition for a hormone (e.g. there are polypeptides which are not hormones and hormones belong to different chemical classes). Instead a hormone is a substance which is released from gland cells under certain physiological conditions and acts on receptors which trigger a reaction functionally related to the trigger of the hormone release. A hormone is thus defined by the way it is "used" by cells in their physiological activities.

By the same token the simple clause "He did x because of y" can either be an attributional statement or something else depending on the context. In any case a linguistic analysis of such a clause is insufficient. For it to be an attribution it is necessary to prove that the sentence was uttered in a context which called for an explanation and not just for a free association or a recital of a text; that "…did x" is a salient activity in the culture, otherwise it would not call for an attribution; that "…because of y" gives a sensible reason in that culture; and that the reason given can be classified as internal or external, stable or unstable. A reason like for example "…because he needed to win" can be internal if conceived as a "need" or intention, or external, if conceived as the pressures of his trainer in a sports competition. One needs to connect a complex clause such as the one mentioned to a whole range of contexts which make up the respective culture before one can call it an interpersonal attribution. In other words, just as a hormone is defined by the functional role it plays in certain biological contexts, an interpersonal attribution is defined by the functional role it plays in certain cultural contexts and both, hormone and attribution, are thus structurally similar to the meaning of a word which is defined by the way it is used (Wittgenstein 1969).

6 Personal communication by Günter P. Wagner, Yale University.
Cultural Traits and Dispositional Explanations

In the foregoing sections it was argued that culture (independent variable) and situational responses of members of a culture (dependent variables) are necessarily related. It follows that explanations referring to cultural traits of subject populations as explanantia\(^7\) for culture specific behaviours in a situation (e.g. experimental condition) are dispositional explanations.

What is a disposition?

(1) An object \(x\) has disposition \(D\), if it exhibits response \(R\) in situation \(S\) (Kutschera, 1982).

For example, if a sample of Indian subjects yields an average score on an "individualism—collectivism" scale which puts them on the collectivist pole, the sample can be said to possess the disposition "being collectivist".

(2) A dispositional explanation is an explanation of the following form:

(a) An object \(x\) was in situation \(S\) at time \(t\) [e.g. a window was hit by a stone a minute ago; a student was in an attribution experiment]

(b) The object \(x\) consists of \(y\) under standard conditions [e.g. the window consists of a pane of glass; the student is a male Caucasian US-American]

(c) Every object consisting of \(y\) under standard conditions has disposition \(D\) [e.g. every pane of glass is fragile; in the average, male white US-Americans are individualist]

(d) Disposition \(D\) means to show response \(R_1, R_2, \text{ etc.}\). [e.g. being fragile means to break under force, etc.; being individualist means scoring high on the individualism scale, etc.]

(e) It follows: The object \(x\) showed response \(R_1\) which is what disposition \(D\) means (see definition (1) before) and also \(R_2\), etc. [e.g. the window cracked a minute ago and also made a high pitched cracking sound; the student scored high on the individualism scale and also exhibited an internal attribution bias].

(f) New insight: Disposition \(D\) means to show response \(R_1\), and also \(R_2\), etc. [e.g. being fragile means to break under force and also to produce a sound when hit, etc.; being individualist means scoring high on the individualism scale and also committing the 'fundamental' attribution error, etc.]

Dispositional explanations of research findings through culture always add something to the definition of this culture. A dispositional explanation confirms that an effect is implied by the

\(^7\) The term "explanantia" is the plural of "explanans".
definition and properties of an "object"; and, as is the case in cross-cultural psychological investigation, observing the object \( x \)'s reactions beyond the principal disposition (e.g. individualism) reveals new response behaviours (attribution bias) which turn out to be correlated with the original disposition. Deeper analysis of this correlation reveals, in the majority of cases, that the relationship is not contingent at all, but implied by the very definition of the disposition at first hand.

This was the case with the fundamental attribution error which, as a consequence of its failed replicability in collectivist cultures, was recognised as part of Western common-sense and habit; the missing ethnocentric attribution error in Malaysian and Singaporean Chinese may be part of the Chinese cultural habit; and the higher emotional independence of Indian and Turkish spouses can be recognised as part and parcel of normal marriage arrangements in role-segregated cultures. Such findings cannot be causally explained by culture or a cultural variable. The findings simply add more details to the psychological description of cultures and their representatives.

Usually, in research and in its associated statistical procedures aimed at explanation a cause takes the form of an independent variable and an effect that of a dependent variable. These two classes of variables demand separate treatment:

1) Independent "Variables": Cultural Traits

(1a) Culture is a meaning system whose constitutive elements (beliefs, values, etc.) are interdependent and closely linked together. Wittgenstein's (1969) essential insight was that the meaning of words does not reside inside the words, but outside in their relationship with other words and in the pragmatic contexts of their use, i.e. in local practice. Beliefs, values, etc. attain their meaning through the specific social and cultural setting where they are used and uttered. The explanation of human action and talk involves placing them in the context of forms of life "whose significance goes without saying" (Toulmin 1969). This is probably what Triandis (1996) means by cultural syndromes.

(1b) Cultural traits are descriptions of cultures. They are logically connected to each other and often tacitly well-known to local actors. Relationships between traits, beliefs and values, hence, are not contingent as would be required for a causal process explanation. Instead these
relationships are culturally necessary; one could say that they are common-sensical or habitual for the competent actors.

(1c) A continuous and ordinal variable presupposes that objects mapped onto it have the same property in common. What varies is the degree to which objects possess this property, i.e. the quantity. Two cultural groups, say India and Austria, do not have any property in common which could be reasonably declared fit for quantitative comparison. Individualism–collectivism for instance looks like a common dimension. The fact that cultural traits are necessarily related to other local traits, however, forbids quantitative comparison. The local version of individualism in Austria and of collectivism in India does not constitute a sufficiently homogenous property to allow quantitative mapping on one and the same dimension across Austria and India.

(1d) A categorical variable presupposes that objects mapped onto it have the same property in common. What varies is the quality of the property. Consequently two cultural groups, e.g. Korea and Brazil, have the property of being cultures in common, i.e. each possesses a distinct syndrome of beliefs, values, etc. They can rightly be regarded two categories of the non-quantitative variable <culture>.

(2) Dependent "Variables": Overt and Verbal Behaviour

(2a) The same argument as in (1a) applies here. Every psychological expression of members of a culture is functionally embedded the local system of meanings and practices.

(2b) Overt and verbal behaviour of competent actors is not contingent to other characteristics of a culture. Instead, the relationship between characteristics is necessary, common-sensical or habitual.

(2c) Overt and verbal behaviour, if used as a dependent variable in cross-cultural comparison, must be equivalent with regard to its meanings, if it is to be mapped onto a continuous variable, e.g. the degree of agreement to an attitude or value statement or the internal–external dimension in attribution research. This is not warranted if (1a) and (2a) is true. Although languages are translatable, using a well-translated questionnaire across cultures is no warrant that the situated meanings implied by the questions are preserved across cultures. If questionnaires or other tasks are used it must be assured that the task as perceived by the investigator is the same as the one perceived by the subject (Laboratory of Comparative Human Cognition 1979, p. 165).
Hence a continuous variable mapping agreement with a well-translated questionnaire item will rarely capture agreement to the same meaning across cultures. This does not only refer to differential acquiescence, social desirability and compliance tendencies in answering questions, but to the local meaning of the dimension itself.

(2d) A categorical dependent variable does not lend itself for a classical research design assessing agreement to attitudes, beliefs or values.

**Response Syndromes and "Semantic Metrics"**

**Semantic Metrics**

If culture comprises systems of beliefs and practices which belong together and which are meaningfully interrelated, "dependent measures" can only be sets of overt and verbal behaviours. It is the "...use of theoretically motivated, within-group (emphasis in the original) observation as a means of specifying culturally patterned activities that can be used as 'measures' by procedures which maximise representativeness" (Laboratory of Comparative Human Cognition 1979, p. 168).

A method using bundles of overt and/or verbal behaviour variables as dependent "measure" addresses two issues simultaneously.

(1) First it allows to compare statistical interactions between variables instead of the main effect of single variables across cultures. By comparing statistical main effects across cultures the problem of interpretation is aggravated by response tendencies like acquiescence, social desirability, compliance and politeness. Main effects are not controlled for these influences. Using bundles of variables obliges the researcher to look at interactions within cultures and comparing these interactions between cultures. In the statistical sense only an interaction found in one culture which is replicated in another culture allows to conclude that the effect is shared by those cultures (Campbell 1961). But, as Amir and Sharon (1987) have impressingly demonstrated, interactions can rarely be replicated.

(2) Second, it allows to pin down the local interrelated meanings within a semantic field of cognitive and/or evaluative behaviours. Bundles of dependent measures also address the issue of semantics. It is very difficult if not outright impossible to assess the local meaning of the response to an attitude, value or belief item without reference to other attitudes, values, beliefs or practices. A set of responses on continuous or categorical scales, be they answers to closed questions or associations to stimulus words, can be analysed by non-linear multivariate statistics.
The resulting pattern of the responses then gives an impression of the semantic relationships—or *semantic metric*—in each culture.

A "semantic metric" shall be defined here as the pattern of implicit meanings respondents attribute to a questionnaire item or psychological assessment procedure. These meanings determine the relationship of one measure or scale to another measure and of one scale difference to a difference on another scale. Thereby respondents pertaining to the same culture define a metric—in a loose sense of the term—within which all their measures are defined. That is to say that measurement patterns are semantically mediated by the culture of the respondents (The allusion to Wygotsky's term of semantic mediation is not by accident. Cf. Van der Veer & Valsiner, 1991).

The aforementioned research by Wagner et al. (1990) is a point in case: By comparing score differences of Indian, Turkish, US and Austrian respondents on our questionnaire, the authors interpreted the scores within one, i.e. the Western cultural metric. They did not do justice to the different local semantic metrics of the respondents in other cultures.

**Is it Legitimate to Distinguish Cultural Groups from Other Social Groups?**

The main thrust of our argument is based on the assumption that cultural groups can be legitimately distinguished from other social groups such as blue-collar vs. white-collar workers, men vs. women, members of the socialist party vs. those of the conservative party, and family A vs. family B, etc. Indeed, much of social psychological research is concerned with psychological differences between social groups other than cultural and one might conjecture that culture is just another term for larger groups who, in the majority of cases, just happen not to share the same language. If this was not the case, our arguments would equally apply to other groups as well.

Sugiman (1997, p. 46f) suggests an elegant way to deal with this problem. He departs from the idea of a canopy which unites people to form a group, symbolised in Figure 2 by a circle. A canopy can be anything, such as shared beliefs, representations and behaviours, interactive practices, institutional forms, language, etc. Two groups, $Y$ and $Z$, may be different from each other, but no two groups are as different as not to share at least some canopy $X$. For example (see part (1) of Figure 2), the canopy of a group of socialists $Y_i$ differs from a group of conservatives $Z_i$ in terms of political ideology, and perhaps life-style. However, living in the same country, they share language, culture, history, religious background and nationality, i.e. canopy $X_i$. 
Furthermore, socialists and conservatives regularly interact in daily life and political events affect both of them. For most research questions, hence, one might reasonably assume that their commonalities are more significant than their distinctiveness and hence presuppose the same semantic metric.

Part (2) of Figure 2 depicts the case of two groups, e.g. Japanese $Y_2$ and Italians $Z_2$, whose canopies differ in many more respects than those in the aforementioned example. They do not share cultural habits, language, religious background, history, nationality—you name it—and the members of these groups rarely if ever interact on a regular basis. Their joint canopy $X_2$, e.g. being both humans and perhaps trading with each other, is far from significant compared to their distinctiveness for most psychological research.

Consequently, of course, it is a matter of degree whether two groups can be considered similar enough to warrant a joint semantic metric for a specific research problem. This degree is determined by the weight of their joint canopy $X$ relative to the weight of their distinct canopies $Y$ and $Z$. It is a safe bet that in the case of cultural groups the weight of their distinctive canopies far exceeds the weight of psychologically relevant commonalities to legitimately presuppose a joint “semantic metric”. In any case it is an empirical question as illustrated by the following examples.

**Examples of Semantic Metrics**

The "Meaning of Work" research team (Meaning of Work Research Team, 1987) conducted an international comparative study on the meaning of work. The key variable in the research was the "work centrality score" which was obtained by having respondents indicate the following: "Assign a total of 100 points to indicate how important areas are in your life at the present time—Leisure, Community, Work, Religion, and Family." The points assigned to Work constituted the work centrality score. It was thought to reflect the relative significance of work in a respondent's life space.

The authors state that "when making international comparison, it is important to consider response frequency distributions and averages. This, however, is not sufficient, and in some instances, may lead to erroneous or incomplete interpretations" (Meaning of Work Research Team, 1987, p.221). Consequently they not only compared the scores of work centrality across
several countries but additionally conducted a non-linear multivariate analysis called "quantification on response pattern" within each sample (Hayashi, 1950). This technique is the same as correspondence analysis and allows to analyse the interrelationship among multivariate categorical data. In the present research it was used to elucidate interrelationships between work centrality and more than 30 items about the respondents' definition of work, their reasons to work, how they feel at work, etc. The result of this procedure is the position of each variable category in a multidimensional space. The closer two categories are mapped in the space, the more highly the two categories are related. By looking at the trace of the respondents' work centrality scores within each country's space the meaning of a high or low score can be determined for each culture.

One exemplary result of this study was that the Japanese scored highly and the US lowest on the work centrality scale. Hence one might be tempted to conclude that US workers are less motivated to work than the Japanese. But this judgment is misleading. The response pattern analysis reveals that, on the one hand, the meaning of a US-score between 20 and 39 points (i.e. moderately high; people who define work positively as something that produces social value) is to place importance on expressive aspects of work. Japanese workers scoring between 20 and 39 are characterised by trust in others and seeking good interpersonal relations; they put interpersonal matters in their workplace first and work itself second. Furtheron, the meaning of a 20 to 39 points score in the US is equivalent to the meaning of a score between 40 and 59 in Japan. On the other hand, the meaning of scores less than 20 (i.e. a negative view of work which one is forced to do, and an emphasis on economic and material conditions of work) is the same in the two countries.

In sum, the analyses reveal that the work centrality scale is in fact based on a different semantic metric in the USA and in Japan. One and the same work centrality score may indicate a completely different attitude in the two cultures while two different scores may be an expression of the same attitude. Purely quantitative scores are hard to compare and interprete if the researcher cannot ascertain that they have the same meaning in the compared cultures.

A study by Wagner, Valencia and Elejabarrieta (1996) illustrates a similar problem. The authors investigated the structure of word associations dependent on the context in which they are assessed. Respondents from Spain and Nicaragua produced free associations about international conflict and peace.
While the goal of the original research does not concern us here, the data shall serve to illustrate a method which allows to deal with bundles of variables, even if they are free associations and therefore different in the two cultures. The variables were the words which the subjects associated with the stimulus words "international conflict". Figure 3, which is not included in the original report, shows how the associations about international conflict in Spain and Nicaragua are related to each other (a) within a culture and (b) between the two cultures.

A correspondence analysis of the stacked co-occurrence matrices of the 15 most frequent words in each country yields a multidimensional space of which the first two dimensions are depicted. They explain about 50% of total variance (more details to the method can be found in Wagner, 1997b). This space can be interpreted as the semantic space of the word associations. A cluster-analysis yields two well connected clusters for each country (in the centre of the figure). Nicaragua contains 5 words (destruction, death, hatred, poverty, hunger), Spain 6 (the same plus "war"). They indicate that the majority of subjects from both countries have a similar semantic core of proximal and affectively laden word associations about international conflict. Spanish subjects also exhibit a loose cluster connecting "violence" and "fear" (upper centre of Fig. 3). Other Nicaraguan subjects produce a loosely connected cluster connecting "economy" and "politics" (lower left corner of Fig. 3) and still others a well connected cluster encompassing "conflict", "blockade" and "war" (lower right corner of Fig. 3).

The point in case is the position of the word "war". While there is no doubt that most Nicaraguans and Spanish share some basic understanding of international conflict as indicated by the two central clusters, Nicaraguan subjects do not place the word "war" in this central cluster. It is a sub-sample of Nicaraguans who associate it together with "blockade" and "conflict" (see the two-pointed arrow in figure 3). This is a semantic complex of more "intellectual" words produced by a sub-sample which can easily be interpreted as resulting from their recent experience of unrest, civil war, foreign intervention and US-blockade. The example shows that Nicaraguans have a differently patterned perception of "international conflict" than Spaniards. Hence, their scores on a "conflict scale" and the resulting "conflict score" would be situated within a different semantic metric than the score of Spanish respondents just as the work centrality scale measures partly divergent things in Japan and in the USA.
As demonstrated so far, a social psychological scale needs to be based on an equivalent semantic metric if it is used across cultures. Without this warrant its scores cannot be compared. The general thrust of our argument, however, is a plea for methodological pluralism in cultural and cross-cultural studies. In the hierarchy of methods, scales and quantitative measurement are too delicate an instrument to be the first choice in a comparison study. Statistical inference is easily misleading due to violations of parametric presuppositions as any student of a statistics course knows. Part and parcel of these presuppositions is the semantic equivalence of a scale used in non-random designs involving cultures and social groups. Unlike body temperature or sharp-sightedness, psychological scales cannot be presupposed to be cross-culturally equivalent, but must be proven to be so. Attempts for such proof are still a rare event (see for example Katigbak, Church & Akamine, 1996, for such an attempt).

**A Suspicion instead of a Conclusion**

We wish to add that it excites our suspicion to see a science like psychology being studied by a disproportionate number of people not only in the United States of America (APA Monitor, Febr. 1996, Vol. 27/2, p. 1 & p. 42) but in virtually every country where psychology is an established subject. One can only guess about the reasons for such popularity; but one reason might well be that people simply wish to know more about their own psychological make-up, i.e. their own psychology as Koreans, Chinese, Chileans, Japanese and Nigerians—you name it. They probably do not only want to know *that, how* and *how much* their psychology is different from the psychology of US or Austrian or any other Western undergraduates.
Can Culture be a Variable?

References


Can Culture be a Variable?

(1) Difference between situations (e.g. experimental manipulation) causes difference in behaviour

(2) Socio-cultural difference between samples explains difference in behaviour

FIGURE 1
Can Culture be a Variable?

FIGURE 2
Figure Captions:

**Figure 1**
What appears as process and content depends on the relative position in an explanation.

**Figure 2**
Schematic illustration of groups and the relative weights of their common and distinct canopies.

**Figure 3**
Semantic space of correspondences between associated words.

*Note:* Words from Nicaraguan subjects have a "+" in front and are in italics.

Light grey clusters: Nicaraguan

Dark grey clusters: Spanish

Bold type: Words pertaining to the enveloping cluster