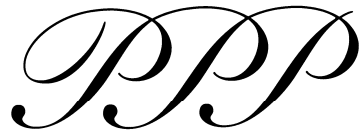


ASSUMPTIONS ABOUT
HUMAN NATURE
AND THE IMPACT
OF PHILOSOPHICAL
CONCEPTS ON
PROFESSIONAL ISSUES:
*A Questionnaire-
Based Study With
800 Students From
Psychology, Philosophy,
and Science*

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ABSTRACT: Philosophical anthropology is concerned with assumptions about human nature, differential psychology with the empirical investigation of such belief systems. A questionnaire composed of 64 questions concerning brain and consciousness, free will, evolution, meaning of life, belief in God, and theodicy problem was used to gather data from 563 students of psychology at seven universities and from 233 students enrolled in philosophy or the natural sciences.

Essential concepts were monism–dualism–complementarity, atheism–agnosticism–deism–theism, attitude toward transcendence–immanence, and self-ratings of religiosity and interest in meaning of life. The response profiles (*Menschenbild*) of women and men, and of

psychology students in the first and midterm of study were very similar. The method of statistical twins indicated a number of differences between students of psychology, philosophy, and the natural sciences. The majority of respondents were convinced that philosophical preconceptions on mind–body and free will have important practical implications for the way in which psychotherapists, physicians, or and judges exercise their professions.

KEYWORDS: concept of man, philosophical anthropology, brain and consciousness (mind-body), free will, meaning of life, psychology students

WHAT IS HUMAN NATURE? This question has long engaged the attention of philosophers. More recently, neuroscientists' manifestos on the mind–body problem and on the illusion of free will have been published (e.g., Elger et al., 2004). There is, however, an alternative to reading what individual philosophers or psychologists have written about human nature: One can carry out a survey of which assumptions about human nature actually predominate. For instance, what do students of psychology in their first semester think about the controversial issue of free will and the mind–body relation? After assessment of such preconceptions, this important question may be posed: Do these individual preconceptions really have an influence on decision making in scientific and professional life, and on the preference for certain methods, explanations, and goals?

These assumptions may not be so present in the minds of individuals that they can be easily described as a structured concept of man. The questionnaire-based approach is, therefore, well-suited to exploring these preconceptions and their interrelationships, despite its methodological shortcomings. What is more, a questionnaire is the appropriate instrument for reaching a large number of individuals.

Instead of restricting itself to the mind–body issue (Fahrenberg and Cheetham 2000), the scope of this study is extended to include topics such as religiosity, interest in the meaning of life, the belief in God and atheism, transcendence and immanence, the theodicy problem, and beliefs about supernatural (paranormal) phenomena. First-term university students of psychology are an important target group; these students have hardly been influenced by their studies and are easy to contact and recruit in their obligatory lectures. Although the aim is to perform a quasirepresentative survey, it is expected that the relatively less simple process of sampling students in later semesters and students of other disciplines probably imposes constraints on the data analysis of these target groups.

This investigation follows a theoretical position that distinguishes central belief systems from other preconceptions that seem less axiomatic and fundamental, even if they are regarded by

respondents as personally important. The central belief systems of an individual or a group of individuals can be differentiated from other beliefs on account of their systematic importance, and the personal assessment of their validity, certainty, and importance.

There are a number of publications that expound different perspectives and provide—either few or thematically rather narrow—suggestions with which to distinguish types of preconceptions, religious orientations, and assumptions about human nature (see, for example, Chapman and Jones 1980; Groeben 1997; Huber 1996; Schneewind 1999; Wrightsman 1992). Noteworthy is Terwey (1993), who developed a taxonomy of world view types based on the representative German ALL-BUS survey in 1992. A number of textbooks of personality psychology make reference to different concepts of man, paradigms, covert anthropological assumptions, subject models, value orientation, and the difficulties of reconciling these, as well as to the importance of a metatheory with which to bring these elements together or to at least structure them. There are also contributions that specifically incorporate the viewpoint of clinical psychology and the defined goal of psychotherapy, and there are many older contributions with interesting discussions (for reviews, see Fahrenberg 2004, 2006; Wrightsman 1992). However important the theme may be and even though it is of such interest to so many inquiring minds, there is a virtual absence of broader exploratory empirical approaches in differential psychology.

The function of organizing the central aspects of the concept of man is assigned in the present study to three fundamental belief systems. The central preconceptions or axioms concern (1) the distinction between monism and dualism, which in turn involves the inherent distinction between different views of the mind–body problem, (2) the belief in God or atheism, and (3) transcendence and immanence as general conceptions. This third dimension was adopted from Bottenberg and Schade (1982, 127), who distinguished two “general conceptions that individuals have of the nature and meaning of their own existence (the self) and of the nature and meaning of the world”: Transcendence: “the extent to which individuals regard reality and the

value of human beings and the world as founded in a meta-physical dimension (God)", in contrast with immanence: "the extent to which individuals regard the essence and meaning of human beings and the world as being based in a reality centered on the (individual) self" (authors' translation). An explanation of these concepts and their conceptual difficulties is beyond the scope of this article (cf. Fahrenberg 2004, 2008).

By following through the argumentation of distinct belief systems the respondents' corresponding answer to any one particular questionnaire item may be different. For instance, theists and atheists supposedly give fundamentally different answers according to their different positions regarding explanations and expectations. These differences are not restricted to religious life in a narrower sense or to beliefs about life after death; these differences are reflected also in the views expressed on creation and the exceptional position of man in evolution, on the meaning of life, and on the final justification of morality. A further example concerns assumptions about the mind-body problem. If in this case the response to the corresponding question is based on the belief in a personal God, then the answer more likely reflects a dualistic than monistic position, belief in the creation of human nature, and belief in an ongoing spiritual existence after physical death. Further, the recognition rather than rejection of supernatural occurrences is consistent with these views. In addition to the analysis of individual answers, this study explores such patterns.

METHODS

THE QUESTIONNAIRE

A 64-item questionnaire comprising a number of items and rating scales was developed to assess the following topics:

- brain and consciousness (mind-body problem),
- free will or determinism,
- previous interest in issues of mind-body and free will,
- assumed practical implications of philosophical preconceptions on mind-body and free will,
- evolution or creation of mankind,
- the nature-nurture problem regarding personality traits and behavior,

- paranormal phenomena (supernatural relationships),
- self-ratings of interest in religion and interest in questions regarding the meaning of life,
- belief in God and other aspects of theism,
- belief in forms of postmortal existence,
- Christian religion and attitude to pluralism,
- meaning of life and morality,
- theodicy (justification and justness of God in the face of the reality of evil (in misery, war, genocide), and
- fundamentals of truth and tolerance.

The full questionnaire is available at <http://www.psychologie.uni-freiburg.de/forschung/index.html/fobe90.html>.

Definitions of philosophical terms were not provided, although these are of course essential for an in-depth understanding of the areas investigated. A previous questionnaire on the mind-body issue included explanatory notes on the conceptual features and distinctions of the topics addressed by the questionnaire (Fahrenberg and Cheetham 2000), but this approach kindled further questions and a sense of uncertainty in many respondents. This is not surprising considering that the enduring conceptual and largely terminological controversies appear as, for example, in Roth and Schwegler's (1995) article on the Brain and Consciousness and the 35 subsequent peer review articles, which are altogether unsatisfactory in explaining the concept of nonreductive physicalism and in setting this apart from epiphenomenalism.

In a pragmatic approach, a number of items were designed to complement and supplement each other instead of the alternative of elaborating on semantic issues. Rating scales, multiple choice items, and attitude scales were employed. In three instances, the format of a trilemma, consisting of three obviously contradictory statements, were chosen to induce a more in-depth deliberation and careful consideration of the item response.

The majority of the items were newly designed. The wording of the mind-body conceptions were drawn from the previous questionnaire (Fahrenberg and Cheetham 2000), but the supplementary definitions were omitted. The Brain-Consciousness Trilemma was influenced by Bieri's (1996) discussion of this topic, and the Theodicy Trilemma was worded following Hermann's (2002) discussion.

The Free-Will Trilemma was written anew (see also Fahrenberg 2004). The multiple choice item on belief in God (theism, deism, agnosticism, atheism) was drawn from the ALLBUS Survey 2000 (Zentralarchiv für Empirische Sozialforschung, Köln, und ZUMA Zentralinstitut für Umfragen und Methoden [Mannheim 2003; Terwey 2003, 103]). The self-rating item of religious attitude, providing a 10-point scale between the poles “not religious” to “religious” was taken from the ALLBUS Survey 2002. For both of these items, and for confession (membership of a particular religious community), representative data for the German population are available. To supplement the self-rating on religious attitude, a new scale “interest in concepts of meaning-of-life” (“not interested” to “interested”) was included.

PARTICIPANTS

The intention was to obtain a representative sample of psychology students at the onset of their university study, that is, in the first semester, and during the midcourse of their study in the second or third year. Because random sampling was not possible and because of doubts about the reliability of a postal survey, a number of university teachers at seven universities in Germany, West and East, were approached to support this project by gathering questionnaire data in obligatory lectures.

The focus was placed on first-year students, but second- and third-year courses were also included. The questionnaire was usually answered during the lecture to attain a maximum of compliance. In addition to psychology students, data were also gathered from students of theology, philosophy, the humanities, and natural science. Most students attend the University of Freiburg. Philosophy students from a lecture at the FU Berlin also participated in this study. Questionnaires were distributed in appropriately selected lectures and were returned the following week. A much smaller compliance rate was therefore expected. The following associated demographic data were also acquired: active or passive membership of a religious community, confession, and place of birth (in the new [previously East] or the old [previously West] federal states of Germany). The survey was

conducted during the first weeks of the winter 2005 semester.

HYPOTHESES

The investigation was exploratory because no investigation of this kind could be found in the international literature, with the exception of the preceding questionnaire study on concepts of mind and body. A profile of basic assumptions about human nature of students at the beginning of their studies was sought. Differences in two important aspects between students born in West Germany and those born in East Germany were anticipated because of the West–East divergence in religious education.

Based on previous findings, it was expected that students would endorse the statement that philosophical preconceptions with respect, for example, to mind–body concepts, do have practical implications for psychology and psychotherapy. Substantial relationships were expected especially between ontological assumptions relating to monism–epiphenomenalism–dualism–complementarity concepts and the belief in God, that is, theism–deism–agnosticism–atheism, as well as to the general attitude to transcendence and immanence.

STATISTICAL METHODS

Cross-tabulations and the Cramér-V (standardized range, 0.0 to 1.0) or Kruskal-Wallis tests for independent groups were applied to categorical data. The method of statistical twins (SAS-Makro ZWILLI, Friedrich Foerster) was used to compare students of different disciplines to control for differences in gender, year of study, and West–East background. The procedure entails the selection of certain variables and, starting from the smaller group, matching members of the second group, thus allowing for statistical controls of confounded sources of variance. Factor analysis, hierarchical cluster analysis, and item analysis were used in structuring subsets of variables. The statistical analyses made use of the SPSS (Version 11.5) and SAS (Version 9.1).

CONFIDENTIALITY

The questionnaire was filled in anonymously. It was announced that a research report on this investigation would become available at the homepage of the Psychology Department, University of Freiburg, before the end of the term. About 400 students subsequently responded.

RESULTS

COMPLIANCE AND MISSING DATA STATISTICS

On average, the compliance rate was about 80%, but this varied between the different introductory or basic lectures in psychology in the order of 60% to nearly 100% of students present. The return was much lower for other lectures. A questionnaire was submitted to further analysis if certain requirements were fulfilled: (1) the multiple choice item regarding mind–body, the three trilemmata, and the multiple choice item regarding belief in God were answered, and (2) fewer than four missing data from the core of 49 remaining items.

Questionnaires from 563 psychology students were obtained; of these 53% were first-year students and 81% were women. The proportion of those born in West/East Germany was 62/38, thus deviating considerably from the expectation of 81/19. For this reason, a weighting procedure was applied in some of the statistical analyses, being a conventional procedure in such surveys (see for example, ALLBUS; Zentralarchiv für Empirische Sozialforschung und ZUMA Zentrum für Umfragen, Methoden und Analysen 2003a, 2003b, 2005).

For variables, the frequency of missing data was less than 2% throughout, with the exception of two items referring to the Christian religion. Ten items were responded to with either very high acceptance (>90%) or very high rejection. In the following, only items with substantial between-subject variance were used. Only 35 of the returned questionnaires, that is, less than 4%, had written commentaries, rarely relating to the questionnaire as a whole. Such notes had been expected with respect to the mind–body issue, the trilemmata, or belief in God and atheism. Most remarks were in fact made in connection with homoeopathy and paranormal phenomena.

SCALE CONSTRUCTION

Based on subsets of items, two short attitude scales were constructed.

Transcendence and Immanence

A high score signifies reference to *transcendence* and theism; God is the assumed creator of mankind and guide to evolution; there is spiritual existence after death, and meaning of life is founded in God whose assistance has already been experienced personally. In contrast, *immanence* means that life evolved without divine action and creation of mankind, artificial life will probably be produced in the laboratory, “God” is a psychological construct conceived of by man, death terminates the individual’s consciousness and person (scale TRIM, 9 items, coefficient of consistency $\alpha = .81$).

Paranormal Phenomena

High scores indicate that supernatural phenomena, like extrasensory perception, telepathy, and miraculous mental healing, may occur; that under extreme conditions acts of exorcism may be useful; and that horoscopes could contain valid diagnostic and prognostic information. Low scores speak for a skeptical attitude or rejection of such concepts (scale PARA, 4 items coefficient of contingency $\alpha = .49$; correlation TRIM, PARA: $r = .26$, $n = 506$).

Although we used several strategies, namely, factor analysis, cluster analysis, and item analysis, it proved difficult to derive more than these two miniscales from this item pool, because a number of the essential items had to be discarded owing to insufficient variance.

The findings are presented in three sections referring to (1) psychology students ($n = 563$), aggregated across seven universities, from which in some instances subgroups according to gender, first/second year, and West/East were distinguished; (2) only students at the beginning of their study course in psychology ($n = 296$), weighted for the West/East proportion to provide quasirepresentative data; and (3) matched samples (statistical twins) psychology/philosophy ($n = 62$) and psychology/natural science ($n = 85$). A full ac-

count of methods and findings is available in the aforementioned research report. In the following, a selection of findings is presented.

PSYCHOLOGY STUDENTS

Ontological Assumptions, Brain, and Consciousness. The brain–consciousness issue (mind–body problem) was presented in five distinct statements. “Which assumption most reflects your own perspective?”

1. There is only *one* ontological aspect, matter (and energy), to which biological systems like the brain and its functions belong (monism).
2. There is only *one* ontological aspect, matter (and energy), to which biological systems like the brain and its functions belong (monism). Conscious experience is a subjective accompaniment of neurophysiological functions, that is, an introspective view that has no causative effect of its own (epiphenomenalism).
3. There are *two* ontological aspects, matter and consciousness (mind, spiritual domain). Consciousness cannot be reduced to neurophysiological processes. Consciousness and neurophysiological processes can interact with each other (dualism and psychophysical causation).
4. There are *two* ontological aspects, matter and consciousness (mind, spiritual domain). Consciousness cannot be reduced to neurophysiological processes. Consciousness and neurophysiological processes can interact with each other (dualism and psychophysical causation). Consciousness and neurophysiology are two separate aspects of brain function (dualism and double aspect concept).
5. The question whether there are *one* or *two* ontological aspects will remain unresolved as a metaphysical issue. Conscious experience and neurophysiology are two complementary ways of describing brain functions (complementarity).

Both dualism and complementarity were the preferred concepts among students of psychology (Table 1). Women showed a higher preference for dualism and psychophysical causation than men. Monism and epiphenomenalism were rarely selected.

TRILEMMATA

The analysis of the trilemmata required counting the distinct response patterns.

BRAIN AND CONSCIOUSNESS TRILEMMA

	<u>1</u>	<u>2</u>
Consciousness is not a physical process (ontological distinction).		disagree
Some consciousness processes are causes of physical processes (psychophysical causation).	agree	
Only physical processes can act as causes of physical processes (“physics as a closed system”).		disagree

Forty-seven percent of psychology students chose the configuration 212, that is, the dualistic position involving psychophysical causation. The configuration 112 received 25%, and in the third place, configuration 211 received 14% endorsement. Altogether, the statement “Some consciousness processes are causes of physical processes” is agreed on by 91%, but a minority think that “Only physical processes can act as causes of physical processes.” The belief in psychophysical causation is so common that this assumption is shared even by the majority of those who were positive about the concept of complementarity (which basically does not assume psychophysical causation).

FREE WILL TRILEMMA

	<u>1</u>	<u>2</u>
I am conscious of having a free will.	agree	
A conscious act of volition evolves from nonconscious brain functions, which are completely interrelated causally. Thus, the notion of free will is an illusion.		disagree
I am morally responsible for my conduct.	agree	

The majority of students endorsed configuration 121, that is, to be conscious of a free will and to be morally responsible. Second was configuration 211 with 20% agreement and least endorsed

Table 1. Ontological Assumptions (Brain–Consciousness and Mind–Body Problem)

	<u>Total</u>	<u>West</u>	<u>East</u>	<u>Woman</u>	<u>Man</u>	<u>First Semester</u>	<u>Higher Semester</u>
	%	<i>n</i>		<i>n</i>		<i>n</i>	
(1) Monism	3.4	13	6	9	10	7	12
(2) Epiphenomenalism	3.7	14	7	17	4	11	10
(3) Dualism and interaction	42.6	142	98	206	33	137	103
(4) Dualism and double-33 aspect concept	8.0	12	38	37	21	24	
(5) Complementarity	42.3	146	92	185	53	120	118
Valid <i>n</i> = 563	100	348	215	455	107	296	267
Cramer V		For West vs East, $p > .05$		For Women vs Men, $p < .000$		For First vs Higher, $p > .05$	

was configuration 111 with 11%. On the whole, neuropsychological and psychoanalytic objections to the assumption of free thus seem to be less convincing; 32% were skeptical (configuration 211 and further $x1x$ pattern). The contradiction involved in accepting all three statements of this trilemma was tolerated by 11%.

THEODICY TRILEMMA

	<u>1</u>	<u>2</u>
There is extreme negativity/evil in the world: misery, crime, war, and genocide.	agree	
God exists and he is omniscient and almighty.		disagree
God is morally perfect and benevolent.		disagree

The theodicy trilemma also elicited a clear majority position: 62% accepted configuration 122. Second was configuration 111 with 23%, and third, configuration 121 with 8%. The presence of negative/evil in the world motivated most students to doubt omniscience and/or almightiness

of God (or his existence at all?). The contradiction in agreeing to all statements of this trilemma was tolerated by 23%.

SELF-RATINGS OF RELIGIOUS ATTITUDE AND OF INTEREST IN MEANING OF LIFE QUESTIONS

Students rated their religiosity, on average, near scale midpoint between religious and not religious (mean, 4.5; standard deviation, 2.8). No gender differences were observed in this respect, nor differences between participants born in West or East Germany, although representative surveys showed a substantially less religious education and church membership in East Germany (general population and in the subgroup, age 18 to 29, secondary education).

Referring to general interest in questions that address the meaning of life, ratings attained a much higher level (mean, 8.4; standard deviation, 1.9) and 39% endorsed the highest scale point. Obviously, a distinction is made between religious and general interest. These self-ratings were largely independent ($r = .14$; $n = 563$).

BELIEF IN GOD

The fundamental question of belief in God provoked a spectrum of responses. Table 2 depicts the distribution and shows that theism, “I do not believe in a personal God; however, I believe in a higher spiritual power” is a prominent attitude. The straightforward confession “I know God really exists and I do not doubt this” was placed in fourth position. The response distribution suggested that four categories should be used: atheism, agnosticism, deism, and theism, although subsuming answers 3, 4, and 5 in a single category deism remains questionable.

Significant gender differences were mainly due to a higher tendency to prefer atheism–agnosticism and to a higher proportion of “cannot say” among men. Women seemed to prefer deism. Again, no West/East differences were found, although they were expected (Terwey, 2003).

The questionnaire also assessed the students’ religious confession: 35.9% were Protestant, 29.7% Roman Catholic, 2.3% other denomination, and 32.1% no affiliation to church (or missing). Active participation in religious community life was reported by 13.8%, being a passive member by 47.5%.

ONTOLOGICAL ASSUMPTIONS, BELIEF IN GOD—ATHEISM, TRANSCENDENCE, RELIGIOSITY, AND INTEREST IN MEANING-OF-LIFE QUESTIONS

Many significant relationships exist between the basic assumptions about human nature (Table 3), especially between belief in God, self-rated religiosity, and reference to transcendence (scale TRIM). A preference for monism or epiphenomenalism is associated more with atheism and agnosticism than with theism. Dualism is related to deism and theism, and complementarity seems to be more “neutral” in this respect. Interest in spiritual life, that is, religiosity, transcendence (scale TRIM), and theism, were associated slightly but significantly with a positive attitude towards parapsychology.

The selection of basic assumptions was employed in structuring the remaining items. However, the large number of exploratory analysis and statistical comparisons required caution and adjustments of *p*-values (see full research report).

PROFILE OF ASSUMPTIONS

On the whole, the questionnaire elicited a wide spectrum of answers. The means of the statistical distributions can be read and interpreted as a profile or “average belief system” containing essential assumptions about the nature of man (in German, *Menschenbild*)

Exploratory statistical tests showed only in a few items gender differences or differences between first- and second-year students (Cramer V and associated $p < .001$). Women were relatively more convinced about homoeopathy. They are more inclined to accept that essential domains of life are beyond the reach of reason and to accept that life may have a meaning under all circumstances. Women were less sure that there is only one basic truth. Second-year students indicate more concern with issues like brain and consciousness or free will and determinism. They tend to be more skeptical about whether such preconceptions have implications for psychotherapy, and have more doubts with respect to parapsychology (Table 4).

PARANORMAL PHENOMENA

That extrasensory perception and telepathy may occur is assumed by 64% of the students, incidences of miraculous mental healing by 45%, the validity of horoscopes by 17%, and the use of exorcism under extreme circumstances by 14% ($n = 540$, weighted West/East). Second-year students, being better informed, express more doubt about the existence of paranormal phenomena; however, the rate of agreement is still high: 56%, 40%, 12%, and 10% compared with 72%, 50%, 22%, and 18%, respectively, for students at the onset of their studies.

This favorable attitude toward supernatural phenomena is obviously not an isolated finding. Correlation analysis shows that a rather consistent pattern of spiritual beliefs is characteristic of many of the psychology students: essential domains of life are beyond the reach of rational analysis, higher self-rating for religiosity (not for interest in meaning-of-life questions), assuming spiritual existence after death, having experienced God’s aid in a specific situation, and theism (see, Fahrenberg 2006).

Table 2. Belief in God of Students of Psychology and of the German Population (ALLBUS Survey 2000; Terwey, 2003, S. 103)

	N	Total		Students of Psychology				German Population		
		%	%	West	East	Woman	Man	Total	East	
				%	%	%	%	%	%	
1	64	11.4	9.8	14.0	10.8	14.0	14.0	17.8	9	50
2	135	24.0	23.0	25.6	23.3	27.1	27.1	11.4	10	15
3	142	25.2	23.9	27.4	27.5	15.9	15.9	21.3	23	11
4	39	6.9	8.0	5.1	7.5	4.7	4.7	9.5	10	8
5	97	17.2	19.8	13.0	17.8	14.0	14.0	18.3	20	6
6	65	11.5	12.1	10.7	10.5	15.9	15.9	21.6	23	5
7	21	3.7	3.4	4.2	2.6	8.4	8.4	6	6	6
Valid <i>n</i>	563		348	215	455	107		2394	of 3804	
Cramer V				V = .124		V = .174				
				<i>p</i> = .190		<i>p</i> = .008				

Table 3. Relationships Between Fundamental Assumptions

	Ontology	Belief in God	Scale TRIM	Religiosity	Interest Meaning of Life	Scale PARA	Concerned With Issues
Belief in God	.17***	—					
Transcendence- Immanence TRIM	.19***	.44***	—				
Religiosity	.16**	.68***	.67***	—			
Interest in meaning of life	.06	.11	.20***	.11**	—		
Attitude paranormal phenomenaPARA	.07	.17***	.19***	.19***	.16**	—	
Interested in such issues	.09	.05	.07	.04	.22***	.08	—
Practical implications for psychotherapy	.15***	.07	.07	.06	.11	.04	.07

Notes. Ontological assumptions were summarized in four categories: monism and epiphenomenalism, dualism (interaction), dualism (double aspect), complementarity. The four categories for belief in God were: atheism, agnosticism, deism, and theism.

Cramer $V^{***}p = .001$; $**p < .01$; $*p < .05$ (valid n between 492 und 563), the direction of association revealed by inspection of cross-tables.

Table 4. Beliefs of Students of Psychology (Selected Items)

Items	Agree (%)	Woman/ Man (%)	First/ Second Year (%)
1 Life on earth was created by God.	23		
2 Life on earth began coincidentally and developed through biological evolution, by mutation and natural selection.	85		
3 The structure of organisms is so complex and their function so effective that intelligent design must exist.	40		
4 Mankind has evolved over millions of years out of elementary organisms, however, this was guided by God.	23		
5 Future biological research will probably produce artificial life in the laboratory.	84		
6 Advanced computer systems will probably develop an artificial form of consciousness and will communicate with human subjects.	53		

Table 4, cont.

Items	Agree (%)	Woman/Man (%)	First/Second Year (%)
7 There is a more or less obvious difference between apes and humans in many psychological and biological functions but no fundamental distinction.	62		
8 The effectiveness of homoeopathic treatment on certain, even severe physical illness is proven to result in improvement according to objective medical assessment.	57	F > M .004	FS > .001
9 True miracle healing as reported from Lourdes (or other places of pilgrimage) does actually happen in cases of serious and chronic physical illness.	45		
10 Parapsychic phenomena like extrasensory perception (direct perception that occurs outside our sensory system) and telepathy (transmission of mental content, especially of intense emotions and experiences among closely related persons) do really happen, at least in particular and rare cases.	64		FS > .000
11 In extreme cases it may be appropriate for an experienced priest to perform an exorcism (ritual to counteract demonic influences).	14		FS > .008
12 Correct statements about the character of an individual and sometimes even predictions of life events (destiny) can be derived from good horoscopes.	17		E > .003
13 I believe in resurrection and eternal life after death.	20		
14 I believe in spiritual existence after death even though I can not say what this form of existence is.	60		
15 After death my body decays into its constituent parts, and when my brain is dead my consciousness and my person cease to be.	47		
16 Christianity is a unique confession because of the revelation of God and the personal relation to God.	18		
17 Christianity together with the other monotheistic religions (Judaism, Islam) represents a more highly developed form of religion than other kinds like polytheism, pantheism, shamanism.	17		
18 "God" is a psychological construct of men who seek to give ultimate/highest meaning to their existence.	69		
19 Evil is nothing more than an abstraction. It refers to extremely destructive, hostile features of human beings.	80		
20 The essence of life is beyond the reach of rational analysis.	89	F > M .001	
21 I have already experienced God's help in a certain situation.	27		

Table 4, cont.

Items	Agree (%)	Woman/Man (%)	First/Second Year (%)
22 Life becomes meaningful only by turning to and putting trust in God, or in a higher spiritual being (spiritualism, transcendence).	25		
23 Life is meaningful and it always has meaning in all situations, for meaning can be found even when suffering.	76	F > M .007	
24 Life has no deeper philosophical or religious meaning. The meaning of life is to enjoy life.	29		
25 There can be only one fundamental (absolute) truth.	12	M > F .000	
26 Those who are convinced of a particular fundamental religious truth can not accept other doctrines (religions) as being of equal merit.	57		
27 Since nobody possesses the fundamental truth everyone should accept the various ways of seeking absolute truth as being of equal merit, without claiming any one way to be superior.	88		
28 A multicultural society will result in people losing their cultural and religious identity.	18		
Already interested in these themes (rating scale 1–4).	2.44		MS > .001
Implications for professional practice of doctors (rating scale 1–4).	2.94		
Implications for professional practice of psychotherapists (rating scale 1–4).	3.60		FS > .005
Implications for professional practice of judges (rating scale 1–4).	3.19		
Religiosity self-rating (self-rating scale 1–10)	4.51		
Interest in meaning-of-life questions (self-rating scale 1–10)	8.43		
Scale TRIM	3.69		
Scale PARA	2.40		FS > .000

Abbreviations: W, Women; M, Men; FS, first semester; MS, middle semester.

Notes. Cramer V or F-test and associated p -value. Only statistical tests with $p > .001$ are reported in this table. The group with higher values is denoted with the symbol >.

Valid n between 546 and 563, women/men 455/107, first/second year 296/267.

Scale TRIM consists of items 1, 2, 4, 5, 14, 15, 18, 21, and 22; scale PARA consists of items 9–12.

IMPLICATIONS FOR PROFESSIONAL PRACTICE

The question was “Do the assumptions about brain and consciousness, free will, and determinism have implications for professional practice?” and the corresponding response categories allowed for differentiation between psychotherapists, doctors, and judges (Table 5). The evaluation of such implications was independent of self-rated knowledge of and concern about this domain. Students who had a preference for concepts of dualism or complementarity appear to be more convinced than monists of the possible role of such preconceptions in psychotherapy ($p = .026$).

AMOUNT OF PRIOR KNOWLEDGE AND THE APPRAISAL OF IMPLICATIONS

About half of the 563 students were not (16%) or were only rarely (31%) concerned with these issues, whereas 46% were concerned “somewhat” and 7% “in greater detail.” The percentage of “somewhat” or “in greater detail” increased from 47% among first-year students to 60% of the more advanced students.

FIRST SEMESTER STUDENTS OF PSYCHOLOGY

The present investigation included students from seven universities, and in most instances a very high compliance was observed. The data was weighted for West and East Germany proportion, to allow for the generalization of findings, especially with respect to first-year students ($n = 296$).

Twelve percent of these students opt for atheism, 19% for agnosticism, 27% for deism, and 43% for theism. The combination of theism and dualism that involves the assumption of psychophysical causation was most frequently chosen (21%), and this as frequently as the complementarity concept (21%, if the rarely chosen double aspect dualism is included). The perspective of the combination of atheism and monism (including epiphenomenalism) had the lowest preference (6%).

Religiosity (mean, 4.9) and interest in meaning of life were clearly distinguished. The hypothesis that philosophical preconceptions have implica-

tions for professional practice was subscribed to most emphatically, independently of the fact that 48% of the first-year students conceded to having hitherto no or only limited knowledge about these preconceptions.

The attempt to reconcile the statements of the trilemmata revealed the following predominant tendency: belief in psychophysical causation, assumption of free and morally responsible acts of volition, despite contradictory psychoanalytic and neuropsychological evidence, and, despite predominantly theistic orientation, doubt about the almightiness and benevolence of God in view of the extreme negativity and evil in the world: misery, crime, war, and genocide. On the whole, the average profile of assumptions seems similar across gender and across the first and second years of study.

STUDENTS FROM PSYCHOLOGY COMPARED WITH STUDENTS OF PHILOSOPHY AND OF THE NATURAL SCIENCES

Comparisons were made between (1) psychology and philosophy ($n = 62$ matched pairs) and (2) psychology and natural science ($n = 85$ matched pairs). The method of statistical twins accounted for differences in distribution of gender, first/higher semester, and West/East. The philosophy and science students were largely from the University of Freiburg.

Psychology students, compared with science students, had a greater preference for dualism and psychophysical causation or the concept of complementarity (Table 6), and they were more inclined to theism. These findings corresponded to significant differences in response to the brain-consciousness trilemma: “Some consciousness processes are causes of physical processes (psychophysical causation).” The agreement was 57 students from psychology and 44 from philosophy (out of 62 pairs; $p = .004$), and 80 students from psychology and 57 from science (out of 85 pairs; $p = .000$).

The self-ratings of students from philosophy were higher for knowledge and concern with issues of controversy in ontology and free will. Psychology students see the implications of philosophical conceptions for the medical profession as more

Table 5. Assumed Implications for Professional Practice

	Implications for Doctors (%)	Implications for Psychotherapists (%)	Implications for Judges (%)
None	6	1	6
Little	24	5	14
Likely	39	28	35
Certain	31	66	45
	100	100	100
Friedman test (n = 557)	1.67	2.39	1.93

Chi square test = 259.3; df = 6; $p < .000$

Note. The three ratings were correlated (r from .33 to .45).

Table 6. Ontological Assumptions and Belief in God of Students From Different Disciplines

	Comparison 1		Comparison 2	
	Psychology <i>n</i>	Philosophy <i>n</i>	Psychology <i>n</i>	Science <i>n</i>
Monism and epiphenomenalism	5	4	7	18
Dualism (interaction)	20	21	30	23
Dualism (double aspect)	4	4	3	11
Complementarity	33	33	45	33
Cramer V				
		$p > .05$		$p = .007$
Atheism	5	15	9	16
Agnosticism	17	15	17	12
Deism	14	19	16	30
Theism	20	9	39	25
Cramer V				
		$p = .018$		$p = .018$

pronounced and indicated a higher acceptance of the possible validity of horoscopes; however, the PARA scale score did not differ between psychology and science students. Interest in meaning-of-life issues was higher among psychology students.

DISCUSSION

Assumptions about human nature have long been a matter of discourse in the domain of philosophy. In contrast, comparatively little is known about such assumptions from the view point of differential psychology. One of these fundamental questions concerns freedom of will, another the mind–body problem: Is there a causal interaction between consciousness and brain physiology or are processes of consciousness simply introspective views of brain physiology? A previous investigation demonstrated how different the views of students can be on monism and dualism. Most of those questioned were convinced that the preconceptions investigated most likely do have consequences for the theories, methods, and the professional practice of psychologists, psychotherapists and doctors (Fahrenberg and Cheetham 2000).

In the present study, the concept of man as perceived by psychology students was described in terms of several basic preconceptions and a large number of specific aspects. The statistical assessment of group differences was difficult because sociodemographic features (gender, discipline, number of university terms attended, West versus East Germany, and member of religious community) could represent confounding factors; data acquisition was not balanced in this regard. Stepwise comparisons were therefore performed and the method of statistic twins applied.

When asked to express their views on the most general ontological principles (brain–consciousness problem, mind–body problem), many students accepted the concept of complementarity, although almost as many preferred dualism and assumed that processes of consciousness have a causal effect on the physical brain. Monism and epiphenomenalism received very little support. In the trilemma “brain and consciousness,” 47% of the respondents subscribed to the view of

psychophysical causality. In the trilemma “free will,” 62% supported the statement pertaining to possessing free will; the neuropsychological and psychoanalytical suggestions that there is no free will was rejected by the majority. In the trilemma “God’s justice” (theodicy), there is a clear predominant opinion: 62% preferred the configuration that, in view of the reality of evil in the world, expresses skepticism about the omnipotence and benevolence of God (or about the existence of God).

Largely independent of the number of semesters attended, 70% to 90% of students believed that philosophical preconceptions have an impact on professional working practice. This confirms the question of relevance in the previous investigation. The high level of agreement could be interpreted as a response tendency or as a spontaneous reaction to the perceived intention of the investigators behind the questionnaire. The differential judgments of the three professional groups (doctors, psychotherapists, and judges) and different levels of prior knowledge speak against this very general assumption. Whoever expresses a preference for dualism or for the idea of complementarity is more convinced of the practical relevance of philosophical preconceptions than those who favor monism.

The question about God is frequently answered in terms of deism or of a personal relation to God (theism). In addition, a very small number of students have atheistic or agnostic attitudes. In this respect, a West/East comparison—also in connection with the self-reported degree of religiosity—is possible. The differences that would be expected because of the different religious socialization in the new federal states of former East Germany are not evident (cf. ALLBUS-survey, 2002, in total and in comparable subgroups of ages between 18 and 29 years of persons with secondary school education). This leads to the question of whether the choice of university discipline tends to be related to the preference for certain preconceived ideas; in this case, to more students (based on the expected value) who are believers? The data do not, however, indicate a close association with the church. The students rated their interest in questions of life’s meaning and purpose as much higher

(in fact, numerically double scale value) than their attitude to religion. Only 14% of students regard themselves as active (48% as passive) members of a religious community, and 38% are not members or have stepped left the church.

The many students who subscribe to transcendence, to the spiritual world, and to other aspects of transcendence–immanence express also a deep interest in questions of life’s meaning and purpose, and this corresponds with the attitude that paranormal phenomena, miracle healing, extrasensory perception or telepathy, exorcism, and horoscope readings are plausible. A sizable minority of respondents exhibit a consistent pattern of spiritual assumptions. In summary, these results can be interpreted as follows: Despite the low importance attached to church membership and traditional religiosity, the majority of students demonstrate a deistic to theistic orientation and a greater interest in spirituality.

The assumptions, as assessed by the questionnaire, of women and men, and of students in the first or midterm of study are very similar, and a high degree of concordance is evident in the concept of man as expressed by students of philosophy and by students of the natural sciences. There is a tendency for psychology students in comparison with philosophy and natural science students to favor theism. In comparison with natural science students, psychology students support the view more strongly that philosophical preconceptions influence also medical professional practice, and psychologists express a greater interest in questions of life’s meaning and purpose.

The assumptions expressed in the questionnaire items are not formulated in great detail, but as short descriptions of problems of anthropological interest and discourse and as terse statements pertaining to continuing controversies. The answers in the questionnaire could be influenced by the effects of compliance, affirmation tendency, and social acquiescence. All of the brief questions on these difficult philosophical topics lack conceptual clarity; there are ambiguities and topics such as consciousness, free will, God and the meaning of life are associated with misunderstandings or largely irresolvable semantic problems.

The general distinction should, however, be drawn between (1) the level of philosophical

discourse, with its untiring Endeavour to disambiguate concepts and search for theoretical convergence, (2) the level of abstract psychological–anthropological statements about concepts of man, and (3) the empirical level of questionnaire or interview-based responses pertaining to personally held preconceptions. There is presently a clear lack of representative empirical investigation into students’ choice of study and subsequent profession where—and this applies particularly for students beginning their studies in psychology—the choices made are possibly influenced by a strong underlying interest in people and questions of life’s purpose and meaning.

A number of methodological points could be discussed critically: the selection and number of themes, the answer format “agree”–“disagree,” or the potential contextual influence of other questions and answers. The authors’ criticism of this investigation has been addressed in the revision of the questionnaire (cf. Fahrenberg 2006). The relative advantages of a standardized research interview (as according to Wengraf 2001) are not discussed here. The combination of the early version of the questionnaire with a detailed interview of psychotherapists and medical doctors was used by Wider (cf. Fahrenberg 2006).

The apparent lack of empirical investigations could be accounted for by the scientific–theoretical position that the personal worldview should be excluded from research and practice. This assumption finds support in the content analysis of published autobiographies of 49 psychologists or psychotherapists and 23 philosophers (Fahrenberg 2004). Most of these autobiographies contained information about the parental home and educational influences, about schooling and training, and professional life. The issue of the concept of man did arise in the autobiographies of psychologists more frequently, but the privacy of personal beliefs remained resistant to overt expression, despite the fundamental significance of the concept and associated issues for philosophizing, for personality theories and for psychotherapeutic objectives. This begs the question as to whether one’s own concept of man is entirely irrelevant to anthropological reflections about mankind.

The questionnaire may be useful as a teaching aid because it encourages students to reflect

on their own assumptions about human nature and increases awareness of the potential implications of such assumptions for theory and work in professional psychology, psychotherapy, and psychiatry.

OUTLOOK

The present investigation may well encourage further studies of psychological–anthropological issues and the investigation of, for instance, the possible modification of these assumptions, depending on the study discipline: Which assumptions are relatively stable, which are modified through increasing expert knowledge?

Many of the 42 psychotherapists and physicians interviewed by Wider (cf. Fahrenberg 2006) regarded these assumptions as relevant in the context of their own professional work. However, the simulated tasks constructed for this investigation were insufficiently realistic, and plausible analyses are most probably best accomplished in real decision-making situations. The discussion about differential effects of this kind cannot be taken any further here, although it would be very interesting from a scientific or methodological as well as from a psychoanthropological perspective.

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of philosophy and other disciplines in Freiburg. Finally, we express our gratitude to the more than 800 students whose clear and careful responses in the questionnaire made it so easy to assess.

NOTES

A questionnaire designed to explore philosophical conceptions about human nature is quite unusual and may encounter basic objections. At the very least, definitions of the essential terms should be provided at the beginning to avoid misconceptions and to promote more substantive deliberation rather than superficial responses. The original intention was to conduct an extensive structured research interview, during the process of which difficult terms would be explained to allow the participants to reflect on the appropriate distinctions and respond accordingly. The effort involved in this approach would be considerable and would put limitations on a more extended survey. It is also doubtful whether students would be prepared to invest so much time and to surrender their anonymity. Questionnaires are indispensable for attaining a representative overview of the student's beliefs about such philosophical issues, and the information collected in this way will be less precise and less consistent than in interviews.

In the previous study, which focused on the mind–body problem, the multiple-choice items included ten instead of the current five statements. The respondents' feedback seemed to indicate that the range of statements was too differentiated, at least for some of the students. Some definitions were provided beforehand by, for example delineating in a few lines “psychical” as opposed to “physical” functions, but this seemed to be of limited value and provoked in part new questions. The present study therefore disposed of such explanatory notes. Even at the level of advanced philosophical discourse, there is often need for more precise definition. For example, reference to the notion of nonreductive physicalism would require a number of comments on weak or strong reductionism, downward causation, emergence or supervenience, and category errors (cf. Commentaries, Roth and Schwegler 1995).

Instead of explanatory notes and more precise definition, the questionnaire presents several differently formulated statements for each major issue and presents trilemmas to extract a more precise impression of a person's position on an issue. When particular philosophical terms were used in the questionnaire, they were given in parenthesis only (monism, dualism, psycho-physical causality, theodicy). These cues seemed useful insofar as some of the students had already attended philosophy courses in secondary school or university. Clearly, a succinct and clear-cut response

to most of the statements about human nature is not possible here. These statements have to be considered as compendious references for issues of on-going philosophical–anthropological debate. The many entries in a dozen-volume handbook of philosophical terms will amply demonstrate this point.

The question of free will and, similarly, the theodicy “God’s justice” are examples of such enduring theological–philosophical controversies. How can we reconcile his mightiness, benevolence and justness with the presence of evil in the world? G. W. Leibniz was convinced that the belief in God’s justice could be reasoned philosophically, whereas other philosophers could not from the standpoint of rational experience follow this line. Theology tends to view the theodicy issue as rationally unanswerable, as an inscrutable factum. On the other hand, this fundamental contradiction may be considered an argument in favor of atheism. This discussion continues in present day “negative theology” and in many publications on the existence of the evil in world.

In addition to self-reported religiosity and interest in questions of meaning the present study selected three fundamental belief systems in order to structure the item questions and answers: monism–dualism, theism–atheism, and immanence–transcendence. These conceptions are rather general in scope, and they overlap in some points.

Immanence refers here to the sphere of possible experience, that is, aspects of being in this world, and, psychologically, to human nature, to life and essence being attributed meaning and ethical orientation by man himself on the basis of this reality (with no reference or relation outside this) and centered on the individual self. *Transcendence* is exceeding the human experience, beyond the natural world and beyond human rationality. The personal relationship to transcendence may exist in different modes, as belief in god, belief in a supernatural sphere, or by assuming “the thing in itself” beyond all appearance. Again, many variants and different conceptions could be distinguished, for example, the pantheistic notion of the presence of God as immanent in man and in the whole of nature. Such particular notions of transcendence, of mind, and of spiritual beliefs cannot be adequately explored with a questionnaire: They need a research interview.

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ONTOLOGICAL AND OTHER ASSUMPTIONS

LLOYD A. WELLS AND
SANDRA J. RACKLEY



FAHRENBERG AND CHEETHAM have conducted an immensely thought-provoking study of the assumptions about human nature made by 800 students and pose a question about the future impact of these assumptions on individuals' practice in professions including medicine and psychotherapy.

This work represents a branch of "philosophical anthropology," which considers assumptions people make about human nature. The authors used a questionnaire, much of which was newly designed, to assess the assumptions made by university students studying psychology, philosophy, sciences, and other disciplines. Most of the respondents were studying at Freiburg, but some were sampled at several other universities in both the former East and West Germanies. Questions involved consciousness and the brain, evolution, free will, belief in God, the meaning of life, and theodicy.

Given the importance of these beliefs and assumptions in so many peoples' lives, it is quite surprising that there are so few modern data available, and this study ventures an important first step in assessing these assumptions. However, there are many problems inherent in this study (and any like it).

The first, for us, is the validity of the questionnaire itself, an issue that was not specifically addressed in the paper. Face validity is a problem even in the few questions quoted directly in the paper. For example, some statements contain two

clauses, and one could well agree with one without agreeing with another: "I do not know whether a God exists and I do not believe it is possible to know." This is the most relevant answer for a true agnostic, but the assumption that "I do not know whether a God exists" does not necessarily link at all with "I do not believe it is possible to know." Similarly, a theist might have trouble with the two clauses, "I know God really exists" and "I do not doubt this." (Technically, knowledge does imply a lack of doubt, but belief certainly does not.) Particularly in the trilemmas, where various patterns of response were analyzed, these multiple-clause statements may have led students to respond in a manner inconsistent with their true beliefs and assumptions. Furthermore, many of the questions contain terms that may have been unfamiliar to first-year university students. The authors explain their rationale in not defining terms, but the lack of clarity about definitions may have led some of the students to not fully understand the questions asked and to perhaps influence the answers they chose.

Misunderstanding of the questions may account for some of the disparities reported in the results. Other apparent inconsistencies, however, do not seem to be a result of unclear questions. For example, sixty percent of the students agreed with the statement that "I believe in ... existence after death," whereas forty-seven percent agreed with the statement that "when my brain is dead my consciousness and my person cease to be." These

findings do not add up, and this study has several similar sets of data. People contradict themselves in long and complex questionnaires, and this may be a simple explanation for these findings, but is this the only explanation? How seriously did the students take the questionnaire, often given as part of their class? How honest were their responses?

How generalizable are the findings of this study? It is very difficult even to speculate about this. The statistics are incomprehensible in light of the data given, and one must essentially take them on faith, wherever one falls on the God/theodicy questions. The design has many flaws, but we do learn how a subsample of German university students rate important factors about the meaning of life. Statements are made in the paper that the students' results correlate with similar results for the general population, but this assertion seems to be based on a very few questions. One would like much more delineation of this apparent correlation, because we wonder about the juxtaposition of developmental factors with the answers the students gave to this questionnaire. First-year university students are at a critical developmental point, and it would be fascinating to follow this large cohort of students over time to see whether the answers would change. At the least, we need a comparison on the same questionnaire with university-educated adults at various phases of the life cycle, to investigate developmental biases and changes over time, which might be very many. Perhaps one can make a case for developmental philosophical anthropology! We also suspect that British and American university students and adults might respond differently than the German students—grounds for further work in philosophical anthropology.

As we consider possible implications of this work, we find ourselves thinking of the general psychiatry and child and adolescent psychiatry training programs with which we are familiar here at Mayo Clinic. Residents range from atheists to very strongly committed deists, for example. Perhaps the atheists lean a little bit more toward brain monism, but both groups realize that, at our present state of knowledge, we need to pay attention to both brain and mind in dealing with patients. We do not see the deists shunning the brain, and some of the atheists are deeply commit-

ted to humanistic psychiatry and psychotherapy. We are not sure that clinical practice, here at least, is affected by views about God, dualism, evolution, and theodicy, and it is our general impression that psychiatric residents' views of and reactions to their patients are based more on their own developmental and psychological issues than their philosophies. Patients thought to have borderline disorder, for example, elicit very strong feelings from residents in psychiatry, with some of the responses being intensely negative to the point of sometimes being unprofessional. Other residents are less personally affected by these patients and may even find them interesting and find themselves curious about ascertaining ways to help them. This demarcation falls much more along psychological than philosophical lines, in our observation. Beyond this single example, psychiatrists have enormous, often unexamined biases about everything from medicines to psychotherapies. It is unclear, from our observation, that these biases fall along conscious philosophical positions.

The paper, however, led us to think that it would be useful to residency education for residents to be more aware of the kinds of issues discussed in this paper. Even if they have little immediate relevance to patient care given the current state of the art, they may well become more important in the future. If we discover in 2030 that Credit Card Debt Disorder is associated with a deficit in receptor binding in the caudate nucleus associated with a certain genetic polymorphism, eliminative materialists may be less judgmental of the debtors than deists who may not believe in evolution. Recognition of the implications of their own assumptions in their approach to practice may help all involved to more objectively evaluate new approaches developed during the course of their professional lives.

Fahrenberg and Cheetham have provided a fascinating study that, despite its limitations, raises a number of very interesting issues. One hopes that this study may lead us, in psychiatry, to construct similar, better validated instruments and use them to see, over time, what effects psychiatrists' philosophical beliefs have on many aspects of their practice, and to investigate correlations between changing beliefs and changing practices over time.

PSYCHOPHYSICAL CAUSATION AND A PRAGMATIST APPROACH TO HUMAN BEHAVIOR

DAVID H. BRENDEL



KEYWORDS: mind–body problem, philosophy, pragmatism, psychology, psychophysical causation

J OCHEN FAHRENBERG AND MARCUS CHEETHAM have performed a valuable service by conducting and presenting an empirical study of some basic philosophical assumptions of psychologists, philosophers, and scientists. Well-designed, large-scale empirical studies of this kind are all too rare in the literature. Those of us interested in the human sciences are rather in the dark about the assumptions of others working in our own and related fields. For the most part, we are privy only to the philosophical assumptions of friends and colleagues we know intimately and of those relative few who publish their views. We can only speculate about the views of the countless others with whom we have not had the opportunity to establish direct philosophical discourse. The findings presented by Fahrenberg and Cheetham give us an intriguing glimpse at some of the key philosophical assumptions of a variety of clinicians and academics who are interested in human nature and the human sciences.

My aim in this commentary is to present an interpretation of a central finding of this questionnaire study: that psychologists were more likely

than philosophers and scientists to embrace “psychophysical causation” as a part of their philosophical worldview. It is not, I think, too much of an oversimplification to define psychophysical causation as the presumption that mental events and physical events can cause other mental events and physical events. Psychophysical causation can be distinguished from other positions on the mind–body relation, some of which Fahrenberg and Cheetham mention in their article. Among these alternative positions is epiphenomenalism, the position that physical events cause other physical events and can cause mental events, but that mental events themselves have no causal power. Another philosophical position distinct from psychophysical causation is monism, which holds that all events in the world in general (and in human beings in particular) are physical and are best described in physical terms. Fahrenberg and Cheetham do not describe the multiple forms of monism in detail, but it is worth noting that reductive materialism (Wilson 1998) and eliminative materialism (Churchland 1981) are two highly developed forms of the kind of monism to which they allude. It is beyond the scope of this commentary to explore the differences between the two, but suffice it to say that both these forms of materialism reject the legitimacy of mental

events or the mental vocabulary that refers to such events.

It is also beyond the scope of this commentary to advance arguments either for or against psychophysical causation in the philosophy of mind. The concept of psychophysical causation certainly has multiple proponents among philosophers, including those who are ontological monists. The compelling nonreductive materialism of a philosopher such as Terence Horgan, for example, suggests the viability of combining ontological monism with methodological pluralism. In a book chapter entitled “Nonreductive Materialism and the Explanatory Autonomy of Psychology,” Horgan (1993) developed the position that the world is entirely physical (i.e., there are no disembodied minds, persons, or other entities) but is so complex that it can only be understood and explained by employing many vocabularies and methodologies, spanning “the microphysical, neurobiological, macrobiological, and psychological.” This kind of methodological pluralism in the philosophy of mind can be disputed on conceptual grounds, but it seems to be at least as justifiable (and perhaps more justifiable) when compared with other well-defined positions on the mind–body relation.

The appeal of nonreductive materialism and psychophysical causation comes into particularly clear focus in contexts where our philosophical concerns are pragmatic in nature. In other words, when we need to achieve practical goals in our everyday lives, we usually benefit from a philosophy that provides us with the flexibility to use a broad range of ideas, conceptual tools, and causal hypotheses that can be adapted to specific needs and challenges. Nonreductive materialism regards the world as a purely physical place, but ensures this kind of conceptual and methodological flexibility when it comes to explaining and predicting complex human experience and behavior. “Typically, certain context-relative features of discourse,” Horgan wrote (1993, 298), “will determine, in a given situation of inquiry, which sort of explanation is most appropriate for the purposes at hand.” It is not surprising that pragmatists are generally sympathetic to nonreductive materialism and psychophysical causation; these and related philosophical approaches give them

the flexibility and adaptability they need to tackle complex practical challenges.

The findings presented by Fahrenberg and Cheetham help to support this idea. The psychologists they polled, who presumably are most concerned with understanding and helping patients in clinical settings, tended to favor the notion of psychophysical causation over the philosophers and scientists, who presumably are more preoccupied with various academic and theoretical concerns. One might argue that philosophers and scientists can more easily afford to forego psychophysical causation and methodological pluralism, because the viability and success of their academic and scientific enterprises are unlikely to depend on the availability of these approaches. Clinical psychologists, on the other hand, do not have the luxury of renouncing large categories of causal concepts or methodologies when dealing with complicated, hard-to-treat patients. Limiting one’s consideration to strictly biological causes of behavior, for example, may lead to some interesting arguments for a philosopher or novel experiments for a neuroscientist, but it could prove to be disastrous for a practicing mental health clinician. The clinician must be able to approach many (if not most) patients from a biopsychosocial standpoint, with open-minded consideration of multiple factors underlying a mental disorder and multiple therapeutic approaches to treating it, such as psychotherapy and psychopharmacology.

Along these lines, I found the questionnaire data presented by Fahrenberg and Cheetham to be both credible and reassuring. A large percentage of the psychologists they polled seem to be pluralists, insofar as they consider diverse explanatory concepts and types of causation in human behavior. This kind of pluralism is consistent with the highly pragmatic challenges of their clinical endeavors. Psychiatric pragmatism, as I have defined it in my published work (Brendel 2003, 2006), is rooted in the ideas of classical American pragmatists (including William James, John Dewey, and Charles Sanders Peirce) and contemporary pragmatic bioethicists (McGee 2003). At its core, I have argued, are the “four *Ps*” of pragmatism: (1) *practical* reasoning is privileged above theory; (2) *pluralistic* explanatory concepts and causes are

necessary to formulate explanations of people's behavior and to develop helpful treatment plans; (3) *participation* of the patient in his or her own care is essential; and (4) *provisional* explanations of people's behavior are warranted because of the complexity of human behavior and the evolving knowledge provided by the human sciences.

The German psychologists who participated in the study presented by Fahrenberg and Cheetham, it seems, embrace these American pragmatist values more than they embrace the more abstract values of traditional German systematic philosophy, as it manifested itself in the work of such thinkers as Immanuel Kant and G.W.F. Hegel. The German psychologists' open-mindedness about psychophysical causation, pluralistic explanatory concepts, even spirituality and religious values, place them in the intellectual tradition of the classical American pragmatist William James, whose work encompassed experimental psychology as presented in *The Principles of Psychology* (1890); religious diversity as presented in *The Varieties of Religious Experience* (1901–1902); and the explicitly anti-Hegelian, anti-monistic explanatory pluralism he described in *A Pluralistic Universe* (1909). I have no reason to believe that German psychologists in training receive any more exposure to the work of James than their American counterparts receive these days, which is virtually nil. But somehow, Fahrenberg and Cheetham's study reveals, their philosophical assumptions have converged on pragmatist and pluralist values, making sound clinical work

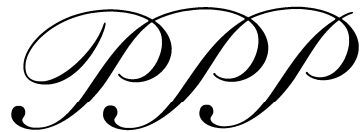
with diverse patients possible. This is good news for the patients who present to their clinics for relief of mental and emotional suffering. We are left to wonder whether and when the background assumptions of most philosophers and scientists might also come to reflect the real-world challenges faced each day by pragmatically minded professionals working in such disciplines as clinical psychiatry and psychology.

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FOLK PSYCHOLOGY AND THE PSYCHOLOGICAL BACKGROUND OF SCIENTIFIC REASONING

HARALD WALACH



KEYWORDS: theory of psychology, theory of science, psychology of science, mind–body problem, folk psychology, scientific world view

SOME PROTAGONISTS OF SCIENCE who are still married to a positivist model of how science functions see science as the pure pursuit of knowledge, free of any preconceptions, free of any personal interest, yielding clear and ideally everlasting truths beckoning humanity over from a superstition ridden dark age of beliefs and would-be knowledge toward the dawn of rational insights that allow for the bettering of mankind's problems. Scientists have followed such an implicit model since Francis Bacon's *Novum Organon*, and the most recent reverberations we hear in popular science books like *The God Delusion* by Dawkins (2006) or in more scientific ones on how an eliminative materialist account of mental events such as Patricia Churchland's might work (Churchland 1986). Here, it is explicitly stated that our folk-psychological accounts such as "I love Emma," or "I have a nasty back ache" is nothing but sloppy speaking and will soon be replaced by a more scientific account, once we know the interior workings of our brains, such as "Neuron

assembly xyz in my nucleus abc in brain areas efg is firing" or "Fast A1 fibers are transmitting stimuli from my lumbar region to the brain, where they override endorphin- and enkephalin-mediated inhibiting pathways, enabling the pain network to go crazy." It has been more than twenty years now since the publication of that somewhat futuristic account, and a whole decade of the brain and countless papers have taught us that we are very far, in fact light years away, from such knowledge as eliminative and even less eliminative materialists would have us gained by now, or in another twenty years from now.

Folk psychology is well and alive, and even more vital than ever, it seems. People go about having their beliefs and ideas about God, the mind, the soul, the world, and human beings in general just as well, eliminative materialists and neuroscience notwithstanding. The data presented by Fahrenberg speak a clear language: Students of different disciplines, but most prominently psychology students, adhere mostly to a dualist—ontological or methodological—world view that allows for some substantiality of consciousness. They suppose that some transcendent reality is active and about, they assume that paranormal events such as spiritual and distant healing can

happen, that telepathy is an option, to name but the more prominent statements to be gleaned by Fahrenberg's tables.

Sure, these are students at the beginning of their career, as they come from school, some of them in their second year, some of them mature after having done some other training. They have had contact with the scientific world view mostly through their schooling and private reading, and, of course, through our folk culture. It would be extremely interesting to see a longitudinal study, surveying the same students after four years of studies. Will they then be more conformist with the mainstream scientific notion? Will they then have changed their initial belief systems? Will they have integrated and absorbed the knowledge they were taught into their private lives and worldviews, or will they have kept them apart from each other? We do not have the answer to these questions, and surely, a next step would be to follow a cohort of students, albeit small, through their journey as they progress.

Meanwhile, we can all take ourselves as an example to follow this thought along as a *gedankenexperiment*. Did we allow the knowledge we absorbed from studying to permeate our whole private life? How did we deal with any cognitive dissonance arising from information coming out of our studies conflicting with our private belief systems? Did we throw away our personal beliefs or did we organize our lives in two compartments, one for our private life, and one for our scientific knowledge?

Fahrenberg's data are unique in the sense that nobody bothers about folk psychology, and these data are the only ones that actually tap into the belief systems of those that will become scientists, teachers, therapists and trainers of tomorrow. They are mostly at odds with the conformist science view in which a transcendent reality is done away with, consciousness is considered a result of our material-neuronal organization at best, and any paranormal stuff is considered bogus. Depending on our a priori assumptions, we may find these assumptions comforting or disquieting. It is comforting insofar as those starting university studies seem to have quite varied and differentiated views about mind, life, and all those topics

the mainstream scientific worldview seems to be rather oblivious of. It is disquieting insofar as this scientific worldview does not seem to have penetrated our folk culture to a degree such that these students would have absorbed it already with their schooling.

Make no mistake here: Psychology students in Germany are among the best trained students. Different from the UK or US system, Germany runs a system of central allocation of a place to study for sought-after subjects such as medicine and psychology. Psychology follows a *numerus clausus* system, that is, a restricted number of places that are allocated only to students with the best A-level degrees (*Abitur*) nationwide and to some degrees after a waiting period, or to mature students. The entry level required would be comparable to what the best universities in Britain expect, possibly four As in A levels and certainly mostly Bs and As in AS-levels and GCSEs. Those students are among the top tier students Germany produces (of course one might ask the question whether that is really good enough in an absolute sense compared with other countries such as Finland, Japan, or Canada; it is certainly well comparable with what is produced in the British system). These students all have had a more or less thorough exposure to basic knowledge in biology, physics, and chemistry. Nearly all of them have had several years of classes either in religious studies or secular versions thereof, such as ethical studies that deal with such issues as asked in the questionnaire. They all have learned at least English, and most of them a second foreign language; most have had contact with some philosophical concepts, and some with a third language.

So, is their endorsement of dualist stances in the mind-body debate or of something rather complicated such as a complementarist notion (Fahrenberg 1979; Walach and Römer 2000) the result of ignorance, stubbornness, or immaturity? Or is it rather the result of a prevailing counter culture that defies the scientific culture? Was Feyerabend (1980) correct, after all, when he postulated that our Western scientific culture is just one option, not better, not worse, among many options of how to make sense of the world?

Until then, it seems an educated guess that folk psychology is well and alive, and possibly gladly

so. Folk psychology seems to me a good lore and reservoir for common sense wisdom that sometimes eschews a more scientific approach. Take psychoanalysis and depth psychology as a case in point. When I was a student—incidentally with Fahrenberg back in the late 1970s and early 1980s in Vienna, Freiburg and London—psychoanalysis was banned from scientific psychological debate as unscientific (remember, it was the heyday of Popperianism in psychology, just having scrapped positivism). The unconscious was deemed an unscientific notion, not a falsifiable concept, unclear as a notion, and utterly unsound by definition. And all the public folks still reading self-help books of psychoanalysts telling them how to improve their relationships with their parents, how early experiences might have shaped the way they react to current demands, and so on, were considered unscientific, hopelessly misguided, and uneducated. Enter neuroscience and cognitive psychology, the detection of implicit processing and implicit memory (Reber 1993), the possibility of emotional conditioning without conceptual knowledge, because some sensory pathways enter directly into lower thalamic centers and limbic structures without having to be conscious for effecting changes (Damasio 2000), and suddenly the notion of an “unconscious” becomes scientifically viable again. Just recently, a paper was published making plausible that one can have a positive attitude and a negative attitude to one and the same face at the same time, without the two of them being necessarily linked to each other, let alone be aware of each other (Rydell, McConnel, Mackie, and Strain 2006). What an incredible proximity to quite central psychoanalytic teachings! It would be an altogether fascinating history of science detective thriller to outline the movements of this macroshift in scientific culture. Certainly, one element of it was the adoption of new methods that were able to more intersubjectively verify tenets that previously had been gleaned by quite phenomenological, hermeneutic methods such as clinical encounters and reconstructions.

Be this as it may, all the while folk psychology had quite a correct intuition and appraisal of the situation, and if anyone would have asked someone in a bookshop what was most important in

psychology, the answer would have likely been “the unconscious.” This is not to say that we might as well scrap scientific endeavors and just listen to folklore, but it does mean we should be aware of the limitations of scientific approaches and of the folk-psychological reservoir even scientific work draws its nourishing metaphors from.

It is quite clear from the current debate about the foundations of any system, be it scientific or otherwise, that it always has to adopt basic assumptions that are not amenable to verification and vindication by the methods of the system itself (Collingwood 1998; Latour 1999). They come from the general background radiation of our culture, from what people in general believe to be likely, or rational, or worthwhile exploring. And scientists are people and members of their culture, society, and social groups in the first place, and scientists in the second place. Although their science might have reverberations into their private life—they may give up believing in a god as a result of their understanding of science—they are still exposed to the culture, perhaps a wife who still believes in God irrespective of the wise husband’s belief system, or a wife who takes the kids to the homeopath because she is fed up with recurrent throat infections. Hardly any notice is given to this dark matter of prescientific beliefs, priors, and odds that form the cauldron out of which scientific questions, methods, and research programs arise.

Fahrenberg has done us a double favor here, by lighting up this background of psychological and cultural determinants of the scientific enterprise. What goes by the name of “differential psychological conditions of science” is in fact the very source and fountain of science: The personal, motivating driving force for a scientist to actually be scientifically active, productive and innovative, normally much more than his payment or contract would ask him to be. This study elucidates this much neglected background, at least in the making. Although it can only be a starting point, it might and should mark an empirical science of individual-psychological preconditions of scientific work, a study of how individual beliefs and folk psychology influence the scientific culture and how this scientific culture influences or fails to influence

personal beliefs. Once we have understood these processes better, we will know a lot more about science and the validity as well as the impact of scientific claims. This is a timely grounding, I find, that deserves wide notice, replication, and possibly amplification as longitudinal work.

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THE EVALUATION OF IMPLICIT ANTHROPOLOGIES

JOCHEN FAHRENBERG AND
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KEYWORDS: mind–body, philosophical assumptions, human nature

THE THREE COMMENTARIES and the reviewer's notes contain valuable reflections and expand on number of important points. There is general agreement that surprisingly little is known about psychologists', psychotherapists', clinicians', and other professionals' philosophical assumptions about human nature. It is conceivable that these implicit anthropologies represent a potential source of bias in research and practice and that further research is therefore justified.

Doctor Walach emphasizes the pluralism of world views, which is evident in the questionnaire response patterns. The findings contradict the assumption that monism, immanence, and a scientific worldview are predominant preconceptions. Instead, psychology students mostly favor ontological or methodological dualism, and confirm that they have spiritual beliefs or indeed some belief in paranormal phenomena. From this, Dr. Walach extends his thought-provoking perspective to folk psychology, as opposed to mainstream psychology, and reflects on the influence of individual beliefs on scientific culture. It is especially from this perspective that the investigation of certain key concepts and belief systems should be given every encouragement.

Doctors Wells and Rackley were particularly interested in the implicit anthropologies of clinicians. They are inclined to attribute individual differences in understanding and interaction with patients to “psychological” traits or to momentary experience rather than to philosophical beliefs. The latter view was supported by the majority of students in our investigation. With respect to psychotherapists and clinicians, our article contained only a short reference to the interviews conducted by Wider. The majority of the forty-two professionals taking part in this pilot study assumed that there may be such differential biases in their fields, but they conceded that the momentary clinical condition and pragmatic necessities would often override such biases. An empirical investigation to differentiate psychological, pragmatic–clinical, and philosophical factors and the associated bias would be an ambitious project; very careful interviews and perhaps participant observation would be necessary. But before undertaking such a study, further descriptive studies and the development of testable hypotheses are required.

Doctor Brendel referred to the intricacies of the mind–body problem. We agree that many of the recent philosophical writings show nonreductive physicalism to be among the highly favored conceptions. (We do not know whether this discourse represents the majority opinion of philosophers, psychologists, clinicians, or even neuroscientists.)

The inclusion of this specific conception in the multiple-choice item list would require the inclusion of a specific vocabulary and some definitions that are controversial, even among the proponents of nonreductive physicalism. We decided to restrict the wide spectrum of concepts to five categories. Doctor Brendel goes on to voice explicit support for the conceptualization proposed by Horgan, who recommended a pragmatic approach and the use of double vocabularies. He suggests that context-related features in a given instance would suffice for selecting the most appropriate explanation. It is, however, conceivable that close examination of the decision process would reveal criteria containing or stemming from philosophical assumptions.

Doctor Walach makes reference to the complementarity principle, which has a certain intellectual appeal when cross-category relationships are considered, and is not restricted to the domain of physics. Compared with a double-language dualism, the complementarity principle postulates that both frames of reference are fundamentally different in categories, exhaustive within their specific explanation scheme, but are essentially incomplete if, for example, brain and consciousness are viewed as a whole.

Pertinent methodological aspects were already addressed in the article and endnote. However, the appropriateness of a questionnaire with which to assess philosophical standpoints will continue to be met with concern and require careful consideration. It is clear that there is no other practical method for gathering in a population like first-year students of psychology *representative* data about ontological beliefs, religious attitudes, or assumptions on human nature.

Doctors Wells and Rackley noted discrepancies in the response to two items relating to spiritual existence after death and the cessation of consciousness with biological death. The two statements seem to be contradictory and the observed inconsistencies point to possible misunderstandings, response tendencies, context-dependent effects, or other shortcomings well-known in research using personality questionnaires. However, the assumed postmortal existence may have been interpreted

as some mode of nonbiological continuation, for example, in the memory of relatives and friends or in a pantheistic way. Notions of transcendence as specific as these are not easily assessed with such a short questionnaire, but require a more detailed and thorough research interview.

The response patterns obtained by each tri-lemma also hint at semantic problems and possible misunderstandings. The present questionnaire can certainly be improved, and a number of revisions were already included in the research report. Furthermore, group discussions with potential participants could assist in clarification of terminology. Incidentally, the definition of theism-atheism categories was taken from a well-prepared ALLBUS-survey by ZUMA in Germany, and the findings were used for relating the present investigation with the general population data in this respect. Altogether, the commentaries lend support to the refinement of issues and items.

The present experience suggests that subsequent studies should aim at a strategic combination of both the questionnaire and interview method. The research interview, according to Wengraf's aforementioned standard, would comprise an initial semistructured interview followed on a second day by a careful selection of questions based on the evaluation of the answers of the first interview. In full agreement with the commentaries, it is suggested that a follow-up design would be of particular interest: (1) Assessment of first-year students who are easily accessible in sufficiently large number in introductory psychology courses (and, similarly, in philosophy and in science). (2) A second assessment at the level of a Bachelor's or Master's Degree to examine the expected impact of academic education on implicit anthropologies. Students would have to consent to the use of a specific password to enable matching data sets in this cohort. (3) Furthermore, structured interviews with a random sample of participants are desirable to examine the internal consistency of response patterns and, accordingly, the generalizability of findings. In our opinion, the effort required to realize this approach to the empirical investigation of key concepts in world views and assumptions on human nature is very worthwhile.