

THE PSYCHOLOGY OF PHILOSOPHERS: A FACTORIAL STUDY

H. J. EYSENCK AND J. S. L. GILMOUR

Mill Hill Emergency Hospital, London

Many psychologists follow James in believing that a person's philosophy, his *Weltanschauung* as it were, depends on his temperament (10). Mueller-Freienfels maintained twenty-five years ago that "es hängt von der Persönlichkeit des Menschen ab, welche *Weltanschauung* er hat" (13, p. 8), and his whole book is concerned with proving the existence of a "notwendiger Zusammenhang zwischen der Individualität eines Menschen und seiner *Weltanschauung*" (13, p. 9). Adickes maintained a similar point of view, as expressed in his book, *Charakter und Weltanschauung* (1); and more recent writers, such as Jung (11), Kretschmer (12), and others, have endorsed this view.

While the evidence submitted by these writers is mainly anecdotal, a sustained effort has been made by Herzberg (9) to collect reliable biographies of a number of well-known philosophers. He was led to the view that the personality of most of them was characterized by "unusually strong inhibitions which greatly reduce the possible outlets of the practical impulses in action, and thus force them into an alternative activity, that of philosophic thought" (9, p. 137). This conclusion, however, is not completely convincing because no control group (e.g., of eminent physicists) is included to compare with the group of philosophers.

This problem of the relation between temperament and philosophy is of sufficient interest to warrant a slightly more objective treatment, and it was with the purpose of providing certain data in this connection that the present investigation was undertaken. In order to narrow the problem down to more manageable proportions, we selected for particular attention a theory associated with the names of James (10), Kretschmer (12), and Jung (11). These three writers, as well as several others, maintain that, in Jung's words, "der philosophische Idealismus dem introvertierten Ideologismus entspricht" (11, p. 444). In other words, it is suggested

that there is a positive correlation between an idealistic philosophy and an introverted type of temperament. It is this theory which we set out to test.¹

Before being able to make a direct test of this theory, we found it necessary to investigate the question of the generality of philosophical beliefs, i.e., the question whether philosophical attitudes are structured in such a way as to produce a dichotomy of the kind assumed by the three writers mentioned. As will be shown below, we found it useful to make a factorial analysis of the correlations between the answers of our subjects to a number of questions regarding their philosophical beliefs, thus determining the main factors in terms of which their attitudes could be understood.²

This procedure enables us to give a numerical estimate of the amount of "structure" or "patterning" present among the philosophical beliefs of our subjects, and at the same time makes it possible to assess their saturation with the factors isolated in a more objective fashion than would otherwise be possible. Once these saturations are known, we can study the relation of the factors to the temperamental peculiarities of our subjects as indicated by specially constructed "personality inventories."

THE EXPERIMENT

The population used for the purpose of the experiment consisted of altogether 107 philosophers, senior students of philosophy, or persons sufficiently interested in philosophy to answer the questions intelligently. Approximately two fifths of the subjects were procured by personal contact, and approximately three fifths through an advertisement in the journal *Philosophy*.³ Among those taking part were some of the best-known English and German (refugee) philosophers. Strict anonymity was, of course, guaranteed. There were few refusals among those personally approached. The number of answers received altogether was in excess of 107, but a

¹ Kretschmer would even go further than this and correlate body build with Weltanschauung. Boldrini and Mengarelli, in an investigation of one thousand university professors, found that the asthenics tended to have "abstract thought," and the pyknics "concrete thought" (2). We have not attempted to check their findings.

² The questionnaire on the answers to which our analysis was based was drawn up by a committee, consisting, apart from the two writers, of Dr. A. Herzberg, Dr. H. Kaufmann, and M. Davies Eysenck. The suggestion of carrying out the present research originated with this committee, and much of the work of organization was done by the members jointly. Only the present writers, however, should be held responsible for the views expressed in this article.

³ We are indebted to the editor of *Philosophy* for his kindness in allowing us to use the journal for this purpose.

number had to be rejected because too many questions had been left unanswered, or because the answer sheets gave indication that the subject concerned did not reach the required standard of knowledge. (This lack of "standing" was determined by a perusal of the remarks which the subjects were invited to add to their answers, in order to qualify or amplify them.)

Each of these subjects filled in two separate questionnaires, printed on opposite sides of a foolscap sheet. One of these questionnaires consisted of nine questions bearing directly on the philosophical beliefs of the subject; it is reproduced below. Each question was followed by a printed "Yes" and a printed "No," the appropriate answer to be encircled, and by a column for "Remarks."

THE PHILOSOPHICAL QUESTIONS

1. Do you believe that material objects exist independently of any mind?
2. Do you believe that such universals as whiteness and roundness exist independently of the material objects exhibiting them?
3. Do you believe that everything that exists is essentially of one Substance?
4. Do you believe that biological phenomena can be explained on a purely physical and chemical basis?
5. Do you believe that the Universe is directed by a purpose?
6. Do you believe in the existence of absolute values in the scientific, aesthetic, or ethical spheres?
7. Do you believe that metaphysical problems are ultimately reducible to questions of definition and language?
8. Do you believe that all material and mental phenomena are causally determined?
9. Do you believe in the existence of a priori knowledge?

The other questionnaire consisted of a personality inventory, specially constructed for the purpose. It was built up on the basis of Guilford's studies of personality factors (6, 7, 8), and more particularly on the basis of a special factorial analysis carried out by one of us on the correlations given by Guilford. (We are indebted to Professor Guilford for kindly supplying us with certain unpublished raw correlations for the purpose of analysis.)

Guilford, in factorizing his data, comes to the conclusion that there is no general factor of "introversion" running through all the questions which he correlates, but that we have to deal rather with a number of group-factors, such as social shyness, nervousness, rathymia, etc. This conclusion derives its justification from a process of statistical analysis which has found many critics, viz., that of rotation, and it seemed likely that the nonrotated factor-

pattern might give results contrary to those found by Guilford. On factorizing the actual tables of correlations given by Guilford, this assumption was found to be correct. In each of them, we found first of all a general introversion factor, accounting for some 15 per cent of the variance, and in addition to this general factor we found a number of group factors, usually identical with those isolated by Guilford, each contributing some 5 per cent to the variance.

Superficially, then, we appear to come to a conclusion contrary to that reached by Guilford. This contradiction, however, is more apparent than real. As Guilford himself has shown, the clusters of traits, or group factors, which he isolates are themselves correlated, and we can extract a "second order factor" from these intercorrelations, which corresponds in essence to our general factor. In other words, the position in this field of temperament testing is very similar to that in the field of intelligence testing, where the undue insistence of Spearman on the prevalence of a general factor, and the undue insistence of Thurstone on the prevalence of group factors, can also be harmoniously integrated into a form of analysis which takes into account both general and group factors (3, 4).

The group factors found in our analysis were identical with those isolated by Guilford in almost every case, the one exception being that in our analysis "depression" and "rathymia," which form two separate group factors in Guilford's work, are found to be but the opposite poles of one trait. Psychologically, this result is perhaps more meaningful than the emergence of two orthogonal factors, one measuring depression, the other elation.

The questionnaire was made up of the four questions found to be most diagnostic of each of the following group factors: (1) Social Shyness; (2) Emotionality; (3) Nervousness; (4) General Drive; and (5) the six questions most diagnostic of Depression-Rathymia. To these were added the four questions most diagnostic of Introversion but without any large group-factor saturation, and also two questions relating to success in practical affairs, and to the desire to be successful in practical affairs. Thus we have a total of twenty-eight questions, arranged in such a way that as many different questions as possible intervened between two questions belonging to the same group.

RESULTS

In Table 1 are given the correlations between the nine philosophical questions, while in Table 2 we give the first and second

factor saturations derived from a factorial analysis of Table 1. As in a factorial analysis we are dealing with one universe of coefficients only, Yule's coefficient of association was used in calculating the correlations; these coefficients, of course, are not identical with Pearson's product-moment correlations. The first factor which emerges from the analysis is significant beyond a doubt; it accounts for 51 per cent of the variance. The second factor, which accounts for only 13 per cent of the variance, is of doubtful statistical significance. Some of the original questions (2, 3, 5, and 6) have been reversed in order to obtain only positive saturations for the first factor.

TABLE 1
CORRELATIONS BETWEEN THE NINE PHILOSOPHICAL QUESTIONS

	1	2	3	4	5	6	7	8	9
1.....	—	.49	.17	.53	.70	.43	.42	.44	.58
2.....		—	.37	.42	.31	.77	.57	.66	.80
3.....			—	-.25	-.06	-.07	-.03	-.30	.17
4.....				—	-.19	.69	.69	.49	.52
5.....					—	.61	.71	.33	.78
6.....						—	.64	.70	.70
7.....							—	.69	.64
8.....								—	.47
9.....									—

TABLE 2
FIRST AND SECOND FACTOR SATURATIONS FROM A FACTORIAL ANALYSIS OF TABLE 1

Questions:	Factor I	Saturations II
1. Material objects exist independently.....	.71	.24
2. Universals do not exist.....	.85	.06
3. Everything is not of one substance.....	.00	.66
4. Biological phenomena can be explained.....	.53	-.62
5. Universe is not directed by a purpose.....	.59	.22
6. There are no absolute values.....	.87	-.24
7. Metaphysical problems are due to definitions..	.84	-.27
8. All phenomena are causally determined.....	.65	-.41
9. There is no a priori knowledge.....	.91	.32
Variance.....	.51	.13

In order to obtain a rating for each of the subjects on his saturation with the first factor, which is clearly identical with a "Materialistic" as opposed to an "Idealistic" philosophy, points were awarded in the following manner: those who answered questions 1, 2, 6, 7, and 9 in the materialistic sense obtained two points

for each question thus answered; those who answered them in the idealistic sense obtained two minus points. Questions 4, 5, and 8 only rated one point each, and question 3 did not rate any points at all, since this question has zero saturation for this factor. Such zero saturation is to be expected, since the "one substance" might be either "matter" or "spirit."

Subjects obtaining more than 9 points were classified as "Extreme Materialists"; subjects having between 3 and 8 points as "Moderate Materialists." There were 27 in the first category and 21 in the second, making a total of 48 materialists. Subjects obtaining more than 9 minus points were classified as "Extreme Idealists"; subjects having between 3 and 8 minus points as "Moderate Idealists." There were 15 in the first category and 32 in the second, making a total of 47 idealists. In addition to these two groups there were 12 subjects classified as "Undecided," i.e., scoring between 2 points and 2 minus points. In order to compare the temperamental characteristics of "Materialists" and "Idealists," this last group was excluded from the comparison.

The results of comparing the responses of the 48 materialists with those of the 47 idealists on the questionnaire are set out in Table 3. The answers are given in terms of percentages; thus of all the answers to the questionnaire relating to the introvert-extravert dichotomy given by idealists, 50 per cent are introverted, while of those given by the materialists, 52 per cent are introverted.⁴

TABLE 3

Trait	Idealists	Materialists
	<i>(Per cent)</i>	<i>(Per cent)</i>
Introversion.....	50	52
Social shyness.....	54	63
Emotionality.....	49	48
Nervousness.....	29	36
General drive.....	51	52
Depression.....	58	55
Practical success.....	26	29
Desire for success.....	59	48

The differences between the two groups which are being compared are very small and not statistically significant. If anything, they would tend to show that the materialists, rather than the

⁴ The percentages given in this table, and the conclusions drawn therefrom, are not substantially changed when only extreme idealists and extreme materialists are compared.

idealists, were introverted, socially shy, nervous, etc. The greatest difference between the two groups is with regard to "Desire for practical success"; the idealists answer "Yes" to this question more frequently than the materialists, and the difference is almost significant statistically.

DISCUSSION

Two conclusions emerge from this research. In the first place, we have shown that philosophical attitudes are structured, although this structuring is far from perfect. The extent to which we can speak of "structure" in this field is indicated by the percentage contributed to the variance by the two factors isolated, i.e., 64 per cent. This is rather more than is customary in the field of attitude measurement. Thus, in a study of social attitudes of various "unorthodox" groups one of us found that three factors contributed only some 50 per cent to the variance, the first factor contributing 30 per cent (5). The reason for the slightly greater amount of structure in the present research probably lies in the greater homogeneity of our present population.

The nature of this structure becomes apparent when we inspect the saturations of the various items with the two factors extracted. The first factor quite clearly shows a dichotomous division into Materialists and Idealists, and requires little discussion. The most striking division of opinion between the two groups is in relation to a priori knowledge, absolute values, and universals; the question whether or not everything is of one substance is irrelevant to this dichotomy.

The second factor is less clear in its import; it might be suggested that it divides the *monists* from the *dualists*. The statistical evidence for this factor is, however, not strong enough to make it worth while to discuss it in any great detail. It may be pointed out, however, that monism is logically related to the belief that biological phenomena can be explained, and that all phenomena are causally determined, a fact which tends to support our interpretation.

The second conclusion to be derived from our research is that with regard to the temperamental traits measured by the questionnaire the materialistic group is not in any way distinguished from the idealistic group. Such differences as occur are so small, and so frequently in a direction contrary to that predicted by the theoreticians, that we can only conclude that our data, as far as they go, do not support the theory we set out to test.

It might be objected that the very procedure adopted for getting replies to our questionnaire would *eo ipso* select certain temperamental types from the unselected universe of philosophers, so that we might get only philosophers extraverted enough to answer an advertisement. This objection does not seem to us to have very much force. Scores on the questionnaire do not show any undue preponderance of extraverted answers. It would, perhaps, be true to say that our sample of philosophers, with its equal division into materialists and idealists, does not correspond with the proportions of these two schools in the general body of philosophers. This is probably true, but hardly relevant to our purpose.

It might also be objected that questionnaires are not very reliable or valid means of obtaining evidence of temperamental characteristics. While this is no doubt true, and while we would have preferred more experimental and objective methods, it is generally admitted that questionnaires, when filled in by cooperative persons of sufficient intelligence, are fairly reliable and valid, and any definite difference between the groups studied ought to appear in at any rate an attenuated form in the questionnaire answers.

We would conclude then that there is no evidence in the results of this research for the assertion that an introverted temperament predisposes a person towards an idealistic philosophy, or that an extraverted temperament predisposes him towards a materialistic philosophy. It should not be thought, however, that our results disprove the more general contention that a person's temperament influences his philosophy. We were concerned only with an extremely simple form of this general hypothesis, and, having disproved it, are left with the more formidable task, which demands a much more detailed study, of tracing individual connections, and the interaction of several temperamental factors. It seems quite possible, for instance, that a man may adopt a materialistic outlook as an overcompensation for an introverted temperament. Such an occurrence would disprove the special theory which links idealism with introversion, but not the wider theory which considers that a person's philosophy is determined by his temperament.

SUMMARY AND CONCLUSIONS

The attitudes of 107 philosophers towards nine philosophical issues were studied, as well as their temperamental characteristics. A factorial analysis was carried out on the correlations between the answers to the philosophical questions, and an attempt was made to

establish a connection between the factors emerging from this analysis and the results of the "Temperament" questionnaire. The following results were obtained: (1) A general factor, accounting for 51 per cent of the variance, was found in the analysis of the intercorrelations between the answers to the philosophical questions. This factor divided the Idealist from the Materialist viewpoint. (2) A second factor was found, accounting for 13 per cent of the variance, which was tentatively identified with the opposition between the Monist and the Dualist outlook. (3) In none of the temperamental qualities investigated—introversion, social shyness, emotionality, nervousness, general drive, depression—was there any significant or even suggestive difference between forty-seven idealists and forty-eight materialists.

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